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FOREIGN AGRICULTURE BULLETIN No. 2

The Agriculture of Cuba

By

P. G. MINNEMAN
Agricultural Attaché

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UNITED STATES
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The Agriculture of Cuba[1]

By P. G. Minneman
Agricultural Attaché, American Embassy, Havana, Cuba [2]

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[1] Submitted for publication November 1942.

[2] This bulletin was prepared by the author while on detail to the Department of Agriculture. The author was a member of a commission which early in 1941 at the request of the Cuban Government studied the possibilities for the diversification of Cuban agriculture.

Grateful acknowledgment is given especially to Consul General H. S. Tewell and other officers of the U. S. Consulate General at Habana for basic information contained in their reports. Acknowledgment is also due the Cuban Ministry of Agriculture for supplying information and photographs. The assistance of R. F. Lankenau in collecting data is likewise gratefully acknowledged.

The metric system of weights and measures is extensively used in Cuba, but in addition there are several other common units peculiar to the country. The following rates of conversion were used in this report:

Length

Kilometer	mile	0.6214
Meter	inches	39.37
Vara	do	33.4

Area

Caballería	acres	33.1619
Caró	do	3.31619
Hectárea	do	2.471
Rosa	do	1.77693
Besana	do	0.63969
Cordel	do	0.102352
Are (1/100 hectárea)	do	0.02471

Volume

Bocoy	gallons	175
Pipa	do	126
Liter	quarts	1.057

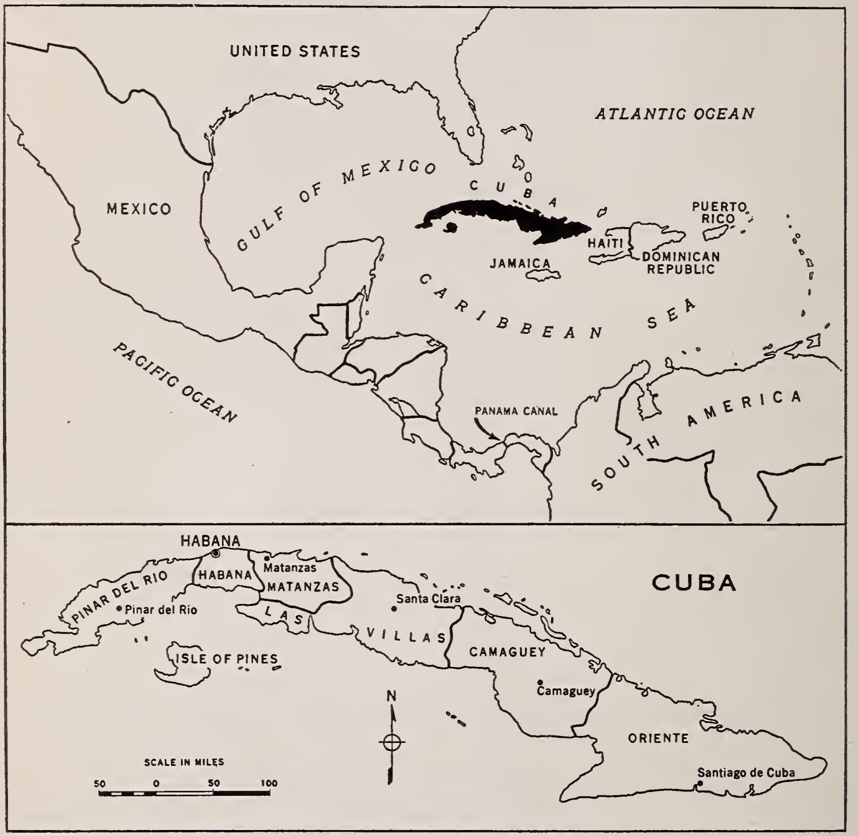
Weight

Long ton (Cuban)	pounds	2,272.032
Short ton (Cuban)	do	2,028.6
Metric ton	do	2,204.62
Quintal	do	101.43
Arroba	do	25.3575
Libra	do	1.0143

The Cuban peso (100 centavos) was almost exactly equal in value to the United States dollar from 1903 to September 1939, when its value declined to approximately 90 cents. It remained at about this level until June 1941 and then rose to 99 cents. All values given are the original Cuban pesos without conversion.

INTRODUCTION

The palm-covered island of Cuba [3] is frequently called the Pearl of the Antilles. It is the largest of the West Indian Islands and lies in the Caribbean Sea only about 90 miles south of Key West, Florida. Cuba is the nearest to the United States all of our Latin American neighbors with the exception of Mexico (fig. 1). It has an area of 44,164 square miles, which is about the size of either Pennsylvania or Louisiana, and it is about three times as large as Switzerland. Cuba is rather densely populated, with about 4.2 million inhabitants. The climate is subtropical, frost-free, but with moderate rainfall. Sugar and, to a smaller extent, tobacco are by far the most important items produced and exported.



OFAR–13

FIGURE 1.—Cuba and the Caribbean area.

The Republic of Cuba consists of the island of Cuba, about 27.5 million acres, and the Isle of Pines, about three-fourths of a million acres, in addition to numerous smaller islands. Cuba is long and narrow, extending 760 miles from end to end, but is only 25 to 100 miles wide. The eastern end is only 50 miles from Haiti and less than

---

[3] The island was named Juana (by Columbus), then Fernandia, Santiago, and Ave María, and finally regained its original Indian name of Cuba.

600 miles from the mainland of South America, while the western tip of Cuba is only 130 miles from the Yucatan Peninsula, Mexico.

As one of our nearest foreign neighbors, Cuba is located in a strategic position for the defense of the United States. It lies squarely across the entrance to the entire Gulf of Mexico, whose waters wash the shores of five of the Southern States, and it lies across the northern approach to the Caribbean Sea and the Panama Canal.

Not only are good will and close cooperation between Cuba and the United States vital for defense, but Cuba is also the most important of all the Latin American countries from the standpoint of the volume of trade with the United States, particularly in agricultural products. During recent years, 1936–40, the total trade with Cuba averaged about 200 million dollars annually and constituted about one-fifth of the total United States trade with all the 20 Latin American countries. The extent to which Cuba depends upon the United States is indicated by the fact that more than three-fourths of Cuba's total exports during recent years have been to the United States and, in turn, Cuba has obtained more than two-thirds of its imports from this country.

From Cuba the United States imports principally those products that either are not produced at all in the United States or else are produced in insufficient quantities: Cane sugar, aromatic cigar tobacco, molasses, tropical fruits, winter vegetables, rum, coffee, henequen, sponges, and ores of maganese, copper, iron, and chromium. The total value of imports from Cuba varied from 105 to 148 million dollars annually during the 5 years 1936–40. United States exports to Cuba consisted principally of industrial products, but included about 22 million dollars' worth of agricultural products, such as rice, wheat flour, lard, pork, cotton, and vegetables, and about 5 million dollars' worth of forest products.

The United States has always had a close interest in Cuba's well-being, as was pointed out many years ago by the Secretary of State under President Monroe (*2, p. 372*)[4] as follows:

> Cuba, almost in sight of our shores, from a multitude of considerations has become an object of transcendent importance to the political and commercial interests of our Union. Its commanding position with reference to the Gulf of Mexico and the West Indies seas; the character of its population; its situation midway between our southern coast and the island of San Domingo; its safe and capacious harbor of Havana, fronting a long line of our shores destitute of the same advantage; the nature of its productions and of its wants, furnishing the supplies and needing the returns of a commerce immensely profitable and mutually beneficial, give it an importance in the sum of our national interest, with which that of no other foreign territory can be compared, and little inferior to that which binds the different members of this Union together.

President McKinley in his last words at Buffalo reiterated that other considerations were even more important than the commercial ones:

> The peace of Cuba is necessary to the peace of the United States; the health of Cuba is necessary to the health of the United States; the independence of Cuba is necessary to the safety of the United States.

Until 1899 Cuba was under the rule of Spain.[5] Although the Cubans had made numerous attempts to obtain their independence, it was not accomplished until 1898, when the United States helped to attain that objective. After the end of the Cuban War of Independdence, the island was administered by a military governor appointed by the United States during the period of a little over 3 years beginning on January 1, 1899, while conditions were being stabilized and an autonomous government was being set up. On May 20, 1902, this had been completed and the Cuban Government began its existence along democratic lines, with an elected president and legislature.

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[4] Italic numbers in parentheses refer to Literature Cited, p.143.

[5] It was under British rule for 1 year, 1762–63, after which it was returned to Spain in exchange for Florida.

Cuba is divided into six Provinces with the following area and estimated population as of June 30, 1938:

	Square miles	*Population*
Pinar del Río	5, 206	363, 654
La Habana [1]	3, 170	1, 042, 709
Matanzas	3, 256	362, 713
Las Villas [2]	8, 257	868, 672
Camagüey	10, 064	437, 720
Oriente	14, 211	1, 139, 731
Total	44, 164	4, 215, 199

[1] The Isle of Pines is included in the Province of La Habana.

[2] "Las Villas" is the new name for the Province formerly called Santa Clara. The change became effective with the new constitution in July 1940.

THE PEOPLE

When Columbus discovered Cuba on his first voyage on October 28, 1492, the island was inhabited by Indian tribes. These offered little resistance to the Spanish conquerors and were reduced to virtual slavery. By the end of the sixteenth century so few Indians remained in Cuba that a mestizo population (a mixture of Spanish and Indian blood), common in most other Latin American countries, never developed in Cuba.

For nearly four centuries, until 1899, Cuba remained under Spanish rule. Consequently, its people are predominantly Spanish in race and culture. As early as 1517, Spain authorized the importation of Negro slaves into Cuba from Africa, and it is estimated that during the following 250 years about 60,000 slaves arrived (*12*). Subsequently the importation of slaves increased to an estimated million before slavery was completely abolished in 1886. The census of 1817, as well as that of 1841, shows that the colored population exceeded the white population. The proportion of colored had declined to only about 24 percent by 1931, although the proportion of mulattoes had increased. The present population of Cuba is therefore Spanish, colored, and a mixture of these two. Some Cuban observers (*12*) estimate that about one-half of the total population may be classified as whites and about one-fourth as mulattoes.

Some laborers from Haiti and Jamaica have also come to Cuba, and early in the nineteenth century a number of Chinese laborers were imported under 8-year contracts, thus establishing a small Chinese section of the population. The latest official census, taken in 1931, shows the following composition of Cuba's population:

Cuban white and mulatto	2, 278, 288
Cuban colored	925, 297
Spaniards	613, 970
Haitians	79, 838
Jamaicans	40, 471
Chinese	24, 480
Total	3, 962, 344

The population on January 1, 1940, according to official estimates, was 4,252,959. This is equal to an average of 96 persons per square mile, nearly double the number in the United States and more than in any continental American country except El Salvador, although fewer than in some of the other Caribbean Islands. Cuba's population has more than doubled since 1907. The capital city, Habana, with nearly three-quarters of a million inhabitants, has about one-sixth of the total population. (See fig. 2.) The following tabulation shows the population of the 12 Cuban cities having more than 60,000 inhabitants each:

Habana	728, 197	Sancti Spíritus	92, 006
Holguín	140, 451	Bayamo	75, 930
Camagüey	137, 893	Matanzas	72, 481
Santiago de Cuba	106, 860	Guantánamo	68, 311
Santa Clara	99, 363	Ciego de Avila	67, 347
Cienfuegos	92, 063	Pinar del Río	64, 470

The principal occupation is agriculture. According to the census of 1919, about one-third of the population was listed as gainfully employed. Of these, about 48 percent were farmers and farm laborers; about 20 percent were engaged in manufacturing and mechanical trades; 16 percent, in merchandising and transportation; 12 percent, in domestic and personal service; and 4 percent, in professional service. Subsequent estimates placed the proportion in agricultural and professional services considerably higher.

The income and standard of living of most of the people in Cuba are not comparable with those in the northern part of the United States. They approach more nearly those in our Southern States, and are well above those in many other Latin American countries and far above those in far eastern countries. Wage rates have been considerably improved as a result of the minimum-wage legislation. Minimum wages for field laborers and for those employed in sugar mills range from $1.30 to $1.50 per 8-hour day; for laborers in cities, from $1.50 to about $2.10; and for skilled laborers, from $2.50 to $5.[6] The principal difficulty from the standpoint of the worker, however, is not so much the wage rates as the inability to find steady employment.

The well-being of the mass of poorer people, particularly those dependent upon the sugar industry, varies widely from month to month, depending on whether the sugar mills are operating. Most of this group do not have sufficient financial resources to permit them to accumulate reserve funds to carry them through the ensuing season of unemployment. Consequently, when the mills close, the standard of living is greatly reduced. The period during which sugar is being harvested and the mills operate is called the zafra. This usually begins in January and continues for 2 to 3 months, depending upon the amount of sugar to be made—in other words, the size of the quota. During this period of employment, most of the wages are spent and an atmosphere of relative prosperity develops. Later during the dead season (tiempo muerto) many are without employment and, not having accumulated reserve funds, are without land or equipment to grow their own food. They live on a reduced diet, consuming less meat and milk and relying principally on rice, beans, and cheap native vegetables until the next zafra.

About two-thirds of the Cuban population are in the low-income group. It is estimated (*12*) that this group spends about 60 percent

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[6] These wage rates include the 10- to 25-percent increase in minimum rates that became effective in November 1941.

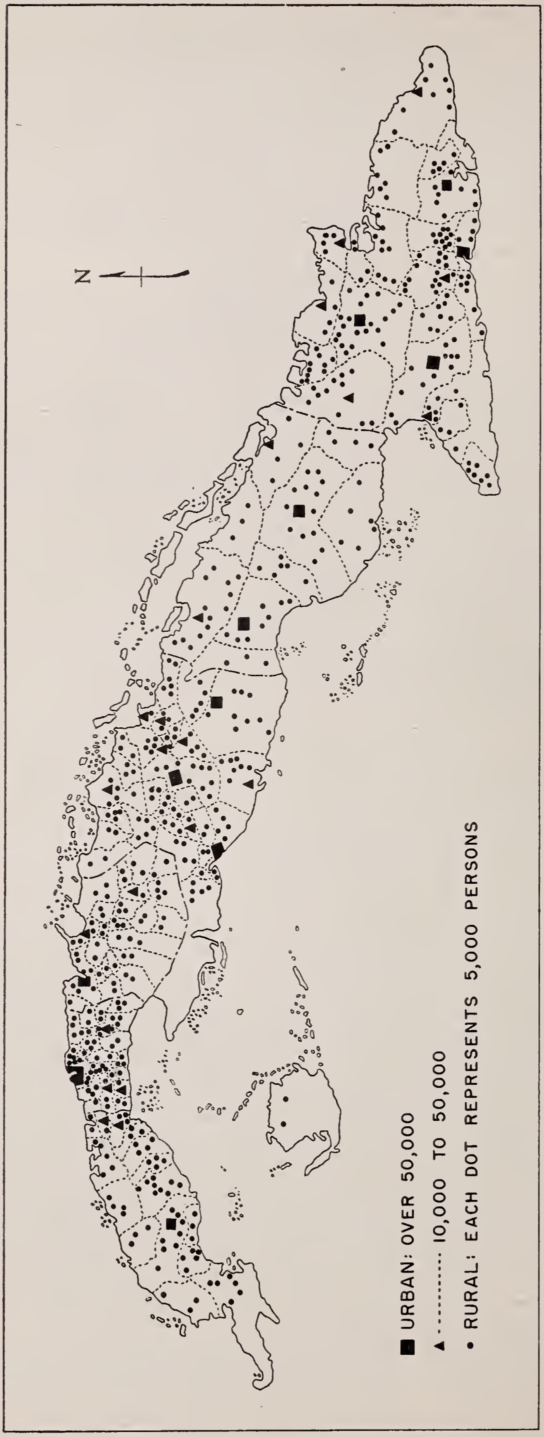
N
■ URBAN: OVER 50,000
▲ .... 10,000 TO 50,000
• RURAL: EACH DOT REPRESENTS 5,000 PERSONS

Figure 2.—Distribution of population in Cuba, 1930.

of its income for food, whereas most people in Europe and North America spend only 30 to 45 percent of their total income for food, leaving 55 to 70 percent for the purchase of other things conducive to a higher standard of living. With a total population of 4.2 million, Cuba in 1939 had about 175,000 radios, 58,000 telephones, 17,135 private automobiles, and about 20,000 mechanical household refrigerators.

Because of the mild semitropical climate it is not necessary to expend as much for housing, warm clothing, or food as in countries with cooler climates (fig. 3). Furthermore, many staple articles of food can be grown easily and are readily available. This is particularly true of the starchy foods sufficient for subsistence, such as bananas, yuca, malangas, sweetpotatoes, yams, and many native fruits. Relatively few fresh or leafy vegetables, such as cabbage, spinach, and lettuce, are consumed, even though they may be grown easily.

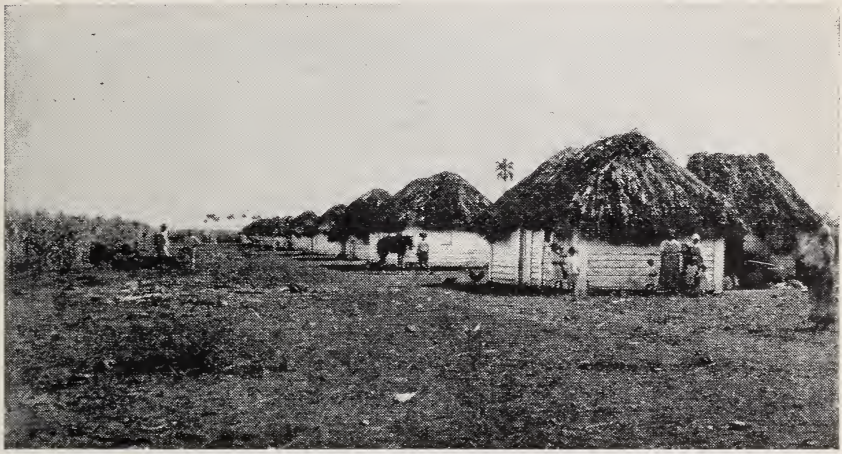

Figure 3.—Typical farmhouses with thatched roofs made of palm leaves.

One of Cuba's gravest and most urgent economic and social problems is to provide employment and a means of livelihood for workers in the sugar industry during the long period when the mills are not operating.

NATURAL RESOURCES

Cuba has been endowed with an excellent semitropical climate, much good soil for agriculture and forestry, and some valuable deposits of minerals, but has practically no coal or petroleum. The topography varies widely from low, marshy areas to mountainous districts. Most of the island may be generally described as rolling, with numerous wide valleys and plains.

Topography

The mountains are principally in three groups, located at each end and in the middle of the island. The largest group is the Sierra Maestra in the extreme eastern and southeastern part, principally along the southern coast. In this region is the Pico de Turquino, the highest point on the island, with an altitude of 7,872 feet. Other ranges, principally the Sierra de Los Órganos in the western end of the island, run parallel to the northern coast. A third large but scattered group of mountains, of lesser altitude, is located in the middle of the island, centering in the eastern part of Las Villas Province. In addition, there are a number of smaller groups scattered over the island.

Between the mountain regions and the coasts and in the valleys are many fairly level areas with excellent soil. In the extreme western part of the island on the slopes between the mountains and the southern coast lie the famous vegas, where Vuelta Abajo tobacco is produced. The plains and valleys in the west-central part are also devoted largely to crops, while in the east-central part, especially in the Province of Camagüey, are extensive plains or sabanas, with poorer and shallower soil covered with natural pasture and used largely for cattle ranching.

Cuba has about 2,000 miles of coast line. The north coast is mostly steep and rocky, and the central section is bordered by innumerable sparsely populated islands and reefs of coral formation covered with mangrove trees. The southern coast, with the exception of the eastern end, is generally low and swampy. West of Cienfuegos along the southwestern coast of Las Villas Province lies the immense Zapata Swamp, about 100 miles long and as much as 35 miles wide at the widest place.

Rivers are generally short, narrow, and shallow and are navigable, if at all, only for short distances. Since the island is very narrow, there are only two watersheds, to the north and to the south. The northern coast, being higher, has the shorter rivers.

SOILS

The soils are generally fertile and friable clays and sandy clays, but vary widely as to types. Some types are different from any found in the United States. The color varies from red to brown, gray, and black. One of the most extensive and outstanding types is the Matanzas red clay, its color varying from brick-red to purple-red because it contains relatively large quantities of iron oxide. This soil is generally deep and is underlain by porous limestone permitting ready drainage. Even though it contains an unusually high percentage of clay, it is friable and may be worked soon after heavy rains. The clay content frequently exceeds 75 percent and sometimes even 90 percent, which is far in excess of the proportion of clay particles usually found in soils in the United States (*6*). This type is found especially in middle and western Cuba.

Another soil type with quite different characteristics is the reddish-brown and yellowish clay found particularly in eastern Cuba. Much of this soil is generally similar to the Matanzas red soil in that it is also a deep clay underlain with limestone, but it differs from the former principally in the characteristics of its clay particles, which make it difficult to work when wet and makes it harden on drying. Other types are the black and gray soils, some of which owe their color to a large proportion of organic matter, while others contain considerable salt. Some have impermeable clay subsoils and are difficult to work during the rainy season.

There are many types of sandy soil. The most important sandy soils are in the sabanas of Camagüey, in western Cuba, and in the

Isle of Pines. These soils have a relatively low clay content and a higher proportion of quartz sand. They are generally well drained but deficient in humus and lime and frequently require the addition of commercial fertilizer.

The swamp regions contain some clay and frequently large areas of peat and marl. In the mountainous areas, the soil is generally thin and stony and therefore unsuitable for cultivation except in the narrow fertile valleys.

CLIMATE

The climate of Cuba is semitropical and suitable for the production of most tropical plants. The temperature is uniformly warm and frost-free. Rainfall is plentiful in summer but light in winter. Although Cuba is located just south of the Tropic of Cancer, which passes between it and Florida, the climate is not actually tropical because of the tempering effect of prevailing winds and the ocean on both sides of the narrow island. The following tabulation shows the mean monthly temperature at Habana and the average rainfall for the island (1900–24):

	° *F.*	*Inches*
January	70. 6	1. 9
February	70. 8	1. 6
March	72. 9	2. 0
April	75. 1	2. 8
May	77. 5	6. 9
June	79. 2	8. 3
July	80. 1	5. 6
August	80. 3	5. 7
September	79. 8	7. 8
October	77. 8	7. 0
November	74. 3	3. 3
December	71. 9	2. 0
Annual	75. 9	54. 9

Temperatures vary only slightly from day to night and from summer to winter. In Habana, for instance, it averages about 80° F. from June to September and only 10° lower during the coolest months, January and February. The extreme range of variation from winter to summer is usually from a low of 45° or 50° to a peak of nearly 100°.

Rainfall averages 54.9 inches a year, which is from 10 to 25 percent more than in most of the eastern parts of the United States but much less than in many tropical countries. It is fairly evenly distributed over the island, ranging from about 36 inches to 70 inches, is slightly heavier on the north coast than on the south coast, and is still heavier in the interior. The western end of the island also has somewhat heavier rainfall than the eastern end.

The most important consideration with respect to rainfall is the seasonal distribution, with wet summers and dry winters. The rainy season usually begins about the middle of May and lasts through October. June and September are the wettest months. About three-fourths of the yearly rain usually occurs in the 6 summer months. The other 6 months, November to April (la seca), are relatively dry, with only about one-fourth of the yearly rain.

Another climatic factor worthy of mention is that Cuba lies in the midst of the hurricane belt. Fortunately, hurricanes do not occur frequently and commonly pass just to the north or to the south of the island. However, they occur during the late summer, from July to

October, when they are most likely to cause considerable damage to crops.

FORESTS

The most striking and beautiful features of the Cuban landscape are the ever-present palm trees. The tall, straight royal palms with long plumelike leaves from the top grow in all parts of the island except where the soil is very poor and in the mountains. The large trunk of the palm tree is pulpy and has practically no value for lumber or fuel; but the tree bears clusters of tiny kernels, which have a high oil content and are used extensively as feed for hogs. Furthermore, the large leaves and broad flat leaf stems, or sheathing petioles, are very useful to Cuban farmers. The leaves are used for making thatched roofs and the sheaths as siding on buildings and as covering for tobacco bales.

Cuba's forest resources have been very severely reduced in the last 50 years. Originally they covered almost the entire island, but now they are insufficient to supply domestic needs. Early records indicate that tropical forests covered not only the mountainous regions, but also the river valleys and coastal plains with such woods as mahogany, Spanish cedar, ebony, granadillo (red ebony), pine, majagua, and many other varieties suitable for fine lumber, as well as for tanning and fiber. Only the most rocky and arid regions were without trees.

In the early history of the country its forest resources were depleted to a considerable extent by cutting large quantities of lumber for shipment to Spain, but the severest destruction occurred through the rapid expansion of the sugar industry in the early twenties after the World War. The clearing process was extremely wasteful; forests were cut, and most of the wood was burned on the ground as soon as it became dry. The irony of the situation is that most of the land on which the forests were thus destroyed was not well adapted or actually needed or used for sugar production and now lies barren. In many regions of the island, the shortage of forested land is so severe that farmers lack wood for fuel and for other farm uses.

It was estimated that in 1919, according to the census of that year, there still remained about 13 million acres of forests, covering nearly one-half of Cuba's total area. By 1940, the forests were reduced to such an extent that the remaining area was variously estimated at from 3 to 3.5 million acres, or only about one-fourth as much as in 1919. Forests now cover only 10 to 15 percent of Cuba's total land area and are principally located in inaccessible regions that are quite unsuited for agricultural production. It is estimated that two-thirds of the present forests are in mountainous areas, nearly one-fourth in hilly areas, and about one-tenth in swampy areas.

As a result of the forest depletion, Cuba is no longer an exporter of lumber and is not even producing sufficient lumber to meet domestic needs. It is estimated that more than 40 percent of the wood consumed in Cuba for industrial purposes has to be imported. During recent years the value of lumber imports, almost entirely from the United States, averaged about $1,370,000 annually, in addition to semimanufactured wood products valued at about $760,000, whereas exports amounted to only about $400,000.

The total sales of products from Cuba's forests in 1939 are reported as follows:

	1,000 dollars
Lumber, sawn, 25,470,000 board feet, at 4.5 cents	1, 147
Poles, posts, and railroad ties	532
Other lumber (including palm sheaths)	380
Firewood, 97,215 cords, at $4.00	389
Charcoal, 2,442,370 bags, at 80 cents	1, 954
Total	4, 402

Whereas the price of lumber per board foot averaged 4.5 cents, some kinds were valued as low as 1.5 cents and others, such as mahogany and Spanish cedar, as high as 7 cents per board foot.

Charcoal is one of Cuba's most important forest products, with sales in 1939 valued at nearly 2 million dollars. It is prepared by small farmers in mountainous and swampy forest regions (fig. 4), and is used in the cities as the principal fuel for cooking instead of imported coal. For this purpose, it has the advantage of being easily transported, as it is lighter than wood, and may be burned in open fires without smoke or soot.

Cuba is confronted with two great problems in connection with forest policy: (1) The preservation of existing forests to prevent further wholesale destruction, and (2) extensive reforestation to put much of the present wasteland back into forest production. Many kinds of forest trees, including valuable hardwoods, grow well in Cuba; and because of freedom from frost, the growing season continues throughout the year. Recent experimental plantings of teakwood indicate that it is also well adapted to Cuba. Cuba is estimated to have from 3 to 4 million acres of nonagricultural land suitable for forestry. This area would permit doubling the present forests.

MINERALS

Cuba has deposits of a number of important minerals. Exports of minerals during recent years (1937–40) have ranged from 4.6 to 7.2 million dollars annually but have constituted only 3 or 4 percent of the total value of all exports. Most important are ores of manganese, chromium, and copper. Those of lesser importance are iron, barytes, gold, and asphalt. Cuba has been the second largest producer of manganese in Latin America and the fourth largest producer of copper. Iron-ore deposits are extensive and accessible but have not been widely developed. A large plant for recovering nickel from low-grade ore is being constructed. By 1942 the production of the strategic minerals manganese and chromium had been greatly increased. The following tabulation shows the average quantity and value of minerals exported annually in 1937–40:

	1,000 short tons	*1,000 dollars*
Manganese	137	2, 414
Copper	47	2, 208
Iron	218	481
Chromium	68	338
Gold	1	89
Barytes	10	61
Silica	89	133
Asphalt	6	97
Others	13	48
Total	589	5, 869

Fuel is Cuba's greatest deficiency. The island has practically no coal or petroleum, and consumption requirements of these two groups of products must therefore be obtained from abroad. There are a few shallow oil wells (naptha), with total production estimated at less than 2 million gallons (*10*). Imports of coal and coke amount to about 300,000 tons a year, with a value of 1 to 1.5 million dollars. Imports of petroleum, mostly crude but including some refined products, amount to about 700,000 tons a year, valued at about 6 million dollars. Nearly all the coal and about half the crude oil are obtained from the United States.

ISLE OF PINES

The Isle of Pines is located about 66 miles (by boat) directly south from the west-central part of Cuba but is only about 33 miles from the nearest mainland in the Province of Pinar del Río. For political purposes, it is included in the Province of La Habana. It covers an area of 755,000 acres and in 1938 had a population of 10,165. This island is about 34 miles across from north to south, and 40 miles at its greatest length from east to west. A marsh running across the island from east to west divides it into two parts.

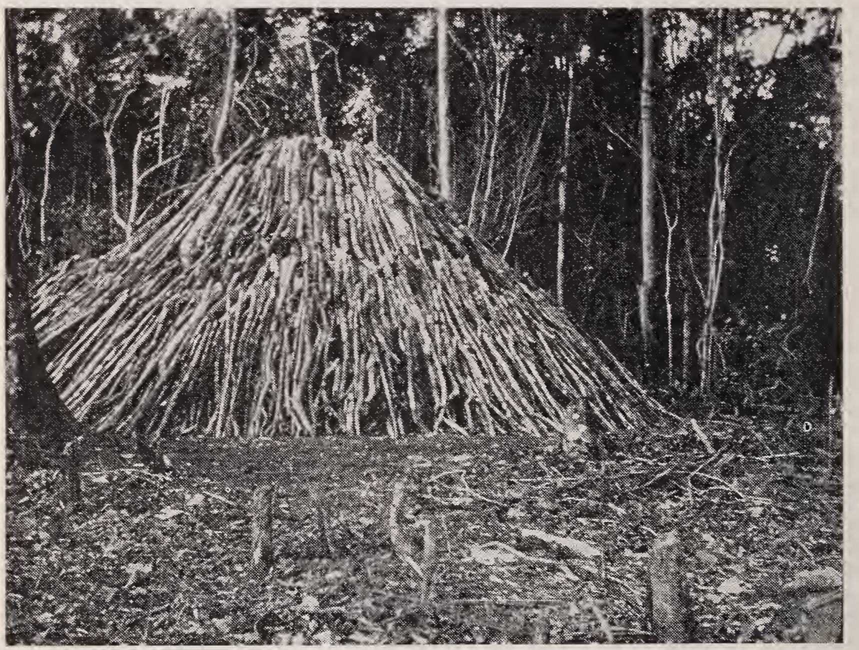

FIGURE 4.—A pile of wood ready to be covered with earth and burned to make charcoal.

The land is predominantly flat and gently rolling, with a few scattered hills and a low tidal mangrove swamp along the coast. Most of the northern part of the island has an elevation of less than 250 feet, but the southern part is more swampy, at no point exceeding 50 feet above sea level. Only the northern part is suitable for farming. Soils, generally similar to those in Florida, are predominantly sandy, with gray, yellow, and brown surface color. Natural vegetation in the northern part is wiregrass, palmetto, and pines, and in the southern part, tropical hardwoods. Fertility is relatively low, but excellent citrus fruits and winter vegetables for export are produced in the northern part through the application of commercial fertilizer and some irrigation.

Manufacturing and Transportation

With the exception of sugar, Cuba's manufacturing enterprises are not large but have been increasing during recent years under the stimulus of tariff protection. The total value of Cuba's industrial production, excluding sugar and related agricultural products, was reported to be 64 million dollars in 1939 as compared with 50 million dollars in 1938.[7] About 32,000 people were employed in these industries in 1939.

Among the industrial products made primarily from domestic raw materials are sugar, molasses, sirups, rum, alcohol, cigars, cigarettes, rope and twine, jerked beef, dairy products, canned fruits, furniture, cement, brick, tile, and sponges. Among those made principally from imported raw materials are paint, soap, perfumes, toilet preparations, shoes, hats, hoisery, other clothing, knit goods, cotton piece goods, blankets, towels, paper and cardboard, tin cans, aluminum ware, and matches (*16*).

Cuba has all the usual methods of transportation but a great deficiency in farm roads. Railways connect most of the towns and sugar centrals in Cuba. (See fig. 5.) They are privately owned, consisting of 20 public-carrier companies and about 165 smaller private railways owned by the sugar centrals.[8] Nearly two-thirds of the freight hauled on the public-carrier railways consists of sugarcane, and nearly one-fourth consists of sugar products. The sugar industry thus accounts for a total of 88 percent. The average freight rate is 2.5 cents per ton-mile and the average passenger rate is about 2.1 cents per mile.

The backbone of Cuba's system of public roads is the central highway, a hard-surfaced road 713 miles long, extending from Pinar del Río through Habana to Santiago de Cuba (fig. 6). In addition there are estimated to be about 1,400 miles of other roads suitable for automobiles and 1,500 miles suitable only for carts.[9] Bus routes connect nearly all the principal towns and villages, except those lying along the coast beyond the mountains.[10] Transportation by automobile is difficult except on the central highway and a few other year-round roads. This fact, together with the low income of Cuban farmers, limits transportation in rural areas almost entirely to carts and horseback.

ORGANIZATION OF AGRICULTURE

Agriculture is Cuba's most important industry, engaging about one-half of the gainfully employed population and accounting for over 90 percent of the country's total exports. Cuba's agriculture is

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[7] From a report by the U. S. Consulate General in Habana, based on information supplied by the Cuban Ministry of Agriculture.

[8] In 1940 there were 3,735 miles of public-carrier railways, in addition to about 7,200 miles of sugar-company railways.

[9] American Consulate General. general information concerning the republic of cuba. [2] pp. Havana. 1941.

[10] There were 2,847 busses registered, 13,890 trucks in service, and about 17,000 private automobiles at the end of 1940. The total number of automotive vehicles registered on December 31, 1941, was 49,541.

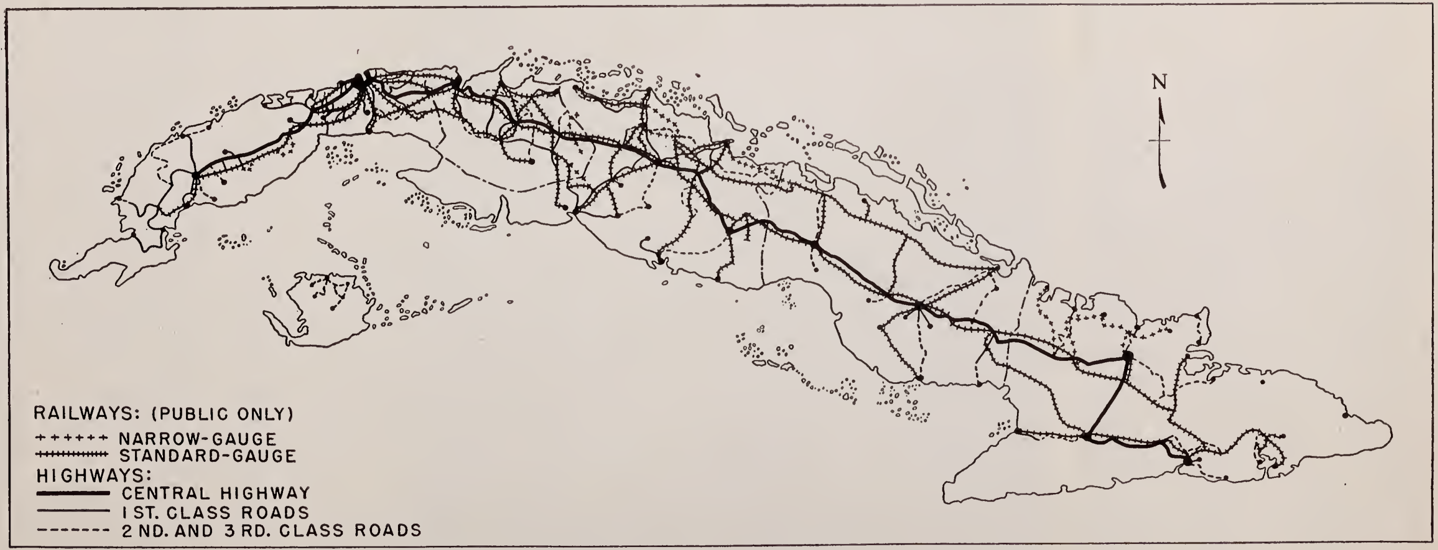

FIGURE 5.—Principal railways and highways in Cuba, 1940.

generally organized on an extensive basis because of the relatively small domestic consumption and the intense competition in the export field compared with the tremendous productive capacity. An abundance of good soil, a year-round growing season, and an ample supply of labor at reasonable wages make it generally more profitable to expand onto new land than to apply commercial fertilizer or expensive equipment on a smaller land area.

Land Use and Types of Farms

Little more than one-half of Cuba's total land area is in farms. Of the total area in farms, it is estimated that nearly 60 percent is tillable, but considerably less than one-half of this is actually under cultivation (table 1). Table 2 shows the estimated acreage in the various crops and that used otherwise in 1940.[11]

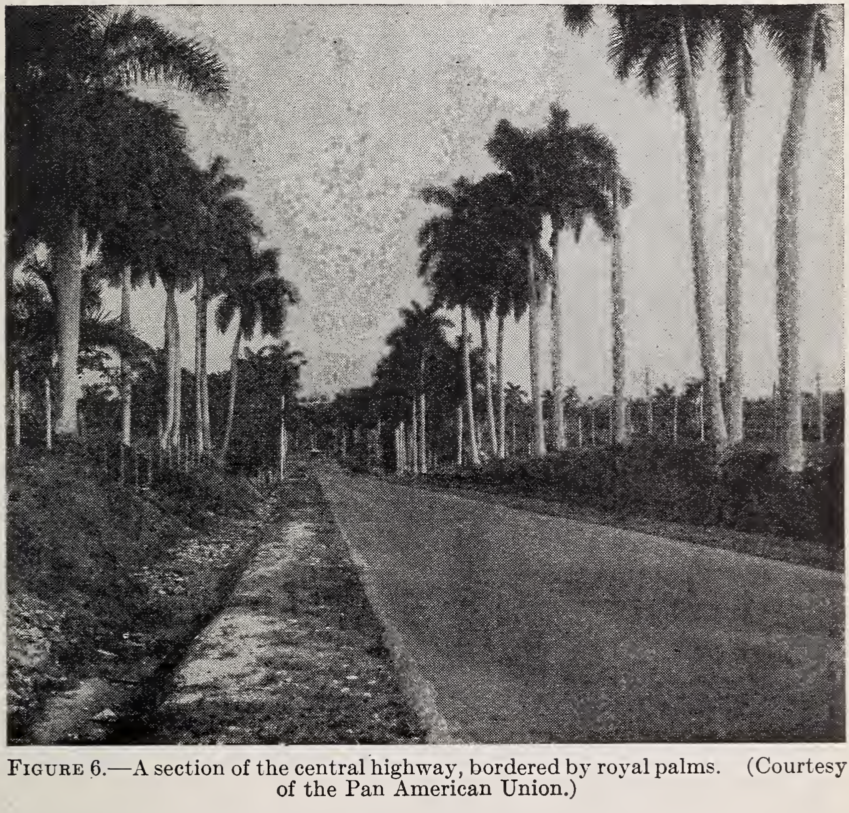

Figure 6.—A section of the central highway, bordered by royal palms. (Courtesy of the Pan American Union.)

Most of Cuba's farms are highly specialized, as for example, sugar centrals, producers of bananas for export, mountain coffee plantations, and cattle ranches. Sugar-mill lands are scattered in fertile areas throughout the island, but particularly in the central and eastern part. Most mill lands are devoted almost exclusively to the production of cane, as are also most of the medium and small farms surrounding the sugar mills. These farms have little livestock, and their other crops are principally to supply family food, although some also produce such crops as beans and corn for sale.

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[11] Data for 1940 acreage of sugar, tobacco, and a few minor crops are actual but for other crops are estimated. There has been no census of land use since those of 1929 and 1930, which were not very accurate. Dr. I. Resillez Nieves (*15*) in 1939 estimated the total area in farms as high as 18.5 million acres. The difference between this and the data in the table is apparently due to his inclusion of additional grazing and mountainous coffee areas. This author estimated the area of sugar centrals at 6.3 million acres; cattle and coffee, at 8.2; and small farms, at about 4 million acres.

TABLE 1.—*Land in farms in Cuba, by Provinces, 1930*

Province	Total land area	Land in farms					Number of farms	Average size of farms
		Total	Cultivated	Tillable but not cultivated	Woods	Other nontillable		
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Number*	*Acres*
Pinar del Río	3,350	1,789	420	541	374	453	11,457	156
La Habana	2,040	1,010	417	337	96	161	11,393	89
Matanzas	2,095	1,282	482	435	70	295	7,429	173
Las Villas	5,313	3,352	871	1,428	411	642	23,280	144
Camagüey	6,475	3,656	962	1,133	633	928	7,768	471
Oriente	9,144	5,373	1,278	1,631	967	1,497	26,069	206
Total	28,417	16,462	4,430	5,505	2,551	3,976	87,396	188

Censo de Población, 1931—Estadísticas Industrial y Agrícola de Cuba.

TABLE 2.—*Land use in Cuba, estimated, 1940*

Land use	Area	Percentage distribution	
		Cultivated	All land
	1,000 acres	*Percent*	*Percent*
Cultivated:			
Sugarcane	2,285	57.0	
Bananas and plantains	400	10.0	
Corn	300	7.5	
Coffee	150	3.8	
Tobacco	108	2.7	
Beans	92	2.3	
Peanuts	80	2.0	
Sweetpotatoes and yams	87	2.2	
Potatoes	50	1.3	
Yuca	56	1.4	
Malanga	52	1.3	
Rice	50	1.2	
Fruit (tree)	45	1.1	
Vegetables	38	1.0	
Henequen	35	.9	
Pineapples	13	.3	
Cacao	3	.1	
Other crops	156	3.9	
Total	4,000	100.0	14.1
Other tillable but not cultivated	5,500		19.5
Permanent pasture and wasteland	4,000		14.1
Woods	2,500		8.8
Total in farms and estates	16,000		56.5
Not in farms	12,265		43.5
Total area of Cuba	28,265		100.0

Tobacco is the principal cash crop in certain areas in the central and western parts. In these regions are also many farms specializing in the production of pineapples and winter vegetables for export, such as tomatoes, eggplant, lima beans, and peppers. Contrasted sharply with these types are the large cattle ranches in Camagüey and Oriente similar to the ranches in western United States. Coffee plantations, and to a smaller extent cacao plantations, are almost entirely in eastern Oriente, with a few coffee plantations near Cienfuegos. These are essentially mountain industries, unlike any other major type of agriculture except that some grazing areas in the mountains are used for cattle. Banana production for export has been confined almost entirely to the valleys in the mountainous areas in the extreme eastern end of the island near Baracoa, where it constitutes a sizable industry and the most important type of farming in that region.

The principal crops grown on general farms are the food crops for direct consumption, either for use on the farm or for sale to the cities. Sometimes these crops are combined with cash crops, such as sugar and tobacco. Principal among the general crops are corn, black and red beans, sweetpotatoes, potatoes, yams, yuca, malanga, rice, and bananas and plantains for local consumption. Peanuts for sale to oil crushers recently have also become an important cash crop for general farming.

Most farmers do not keep much livestock, the main production of cattle being on the large cattle ranches in east-central Cuba. As a rule, farmers keep one or two horses for riding, several oxen to do all the draft work, in some cases a few mules for pack work, a few hogs fed largely on palmiche nuts, and a few chickens. The occasional sale of hogs and eggs constitutes the major portion of most farmers' income from livestock.

SIZE AND OWNERSHIP OF FARMS

According to the census of 1930 Cuba had 87,396 farms, including all types of farms, plantations, and ranches. Of this number nearly one-third were smaller than 34 acres (1 caballería). (See table 3.) About 40 percent had from 34 to 99 acres, 13 percent from 100 to 199 acres, and only 15 percent had 200 acres or more. There were only about 2,000 farms with more than 1,000 acres each. The average size for the country was 188 acres, but this figure is not at all representative, since the small farms are by far the most important. La Habana Province had the smallest farms, and Camagüey, with its cattle ranches and sugar centrals, the largest.

TABLE 3.—*Size of farms in Cuba, by size groups, 1930*

Size group (acres)	Number of farms	Size group (acres)	Number of farms
Less than 34	27, 685	Less than 100	62, 512
34 to 66	23, 413	100 to 199	11, 690
67 to 99	11, 414	200 to 299	4, 111
100 to 133	5, 740	300 to 829	6, 000
134 to 166	3, 681	830 to 1, 659	2, 011
167 to 199	2, 269	1,660 and over	1, 072
200 to 233	1, 819		
234 to 266	1, 143	Total	87, 396
267 to 299	1, 149		

Censo de Población, 1931—Estadísticas Industrial y Agrícola de Cuba.

According to the 1930 census, about 37 percent of the total number of farms and 40 percent of the acreage were operated directly by the owners of the land. An additional 20 percent of the land, particularly the larger holdings, was operated by administration, that is, by hired managers and laborers (table 4). About one-half of all the farmers rented their land, usually on a cash basis, but this accounted for less than 40 percent of the total acreage and less than 30 percent of the cropland.

Table 4.—*Method of operation of farms in Cuba, 1930*

Method	Farms	Area in farms		Average area per farm		Percentage distribution	
		Total	Cultivated	Total	Cultivated	Total area	Cultivated area
	Number	*1,000 acres*	*1,000 acres*	*Acres*	*Acres*	*Percent*	*Percent*
Administration [1]	10,798	3,477	1,752	322	162	21.1	39.5
Owners	32,314	6,499	1,420	201	44	39.5	32.1
Cash rent	35,340	5,420	869	153	25	32.9	19.6
Share rent	8,944	1,066	389	119	44	6.5	8.8
Total	87,396	16,462	4,430	188	51	100.0	100.0

[1] Largely absentee ownership, with operation by managers and hired labor. Includes sugar mills and some cattle ranches.

Censo de Población, 1931—Estadísticas Industrial y Agrícola de Cuba.

There were roughly 16 million acres of land in farms in 1940. Of this acreage the sugar companies alone owned about 5.6 million acres and in addition rented about 2 million acres more from other owners, thus controlling about 47 percent of the total acreage in farms. However, by far the most of the sugarcane—even that grown on the mill-owned lands—is actually produced by colonos who rent the land from the mills. A considerable number of the large farms operated directly by the owners or hired managers are cattle ranches in east-central Cuba. Although these are generally on poorer land and operated extensively, their total acreage is estimated to be nearly as great as that owned by the sugar companies.

Land Values, Buildings, and Equipment

Land values in Cuba are relatively low. The value of most agricultural land is estimated at between $10 and $25 an acre. Poorer grazing land, of course, may be purchased for considerably less than $10 an acre. According to the 1930 census, the average value of land alone was $24.35 an acre.

Cuban farmers have very little in the way of farm buildings or equipment. Because of the warm, even temperature there is little need for heavily constructed houses or farm buildings to protect occupants against cold weather, as there is in most of the United States. Houses are only one story high, commonly constructed of very light material, with thatched roofs of palm leaves and frequently palm-leaf sheaths for siding. The few livestock on most farms do not require housing, and consequently the buildings are small and used largely for storage. According to the 1930 census, the average value of buildings on farms was about $3.35 per acre of farm land, accounting for little more than 10 percent of the total real-estate valuation.

The equipment on most small farms consists of a two-wheeled oxcart, a plow, a harrow, hoes, an axe, and a machete. Practically all the draft work is done by oxen (fig. 7). Although there are numerous moldboard and disk plows, the usual type is the old pointed plow without moldboard, which simply loosens the soil and does not turn it over. With this type of plow it is necessary to replow the field crosswise several times and then harrow it. Planting is customarily done by hand; cultivation consists principally of hoeing; and harvesting of practically all crops is done by hand. Only a few large farms have tractors and such larger equipment as seeders, grain drills, binders, threshers, and trucks. The two-wheeled oxcart is the standard means of hauling, except where colonos have access to the use of the field railways belonging to sugar centrals. Small farmers in outlying areas, especially in the mountains, rely largely on horseback and muleback transportation. The absence of solid roads to most farms prevents extensive use of wagons, trucks, and automobiles. The average value of farm equipment, according to the 1930 census, was about 80 cents per acre, or from $25 to $200 per farm.

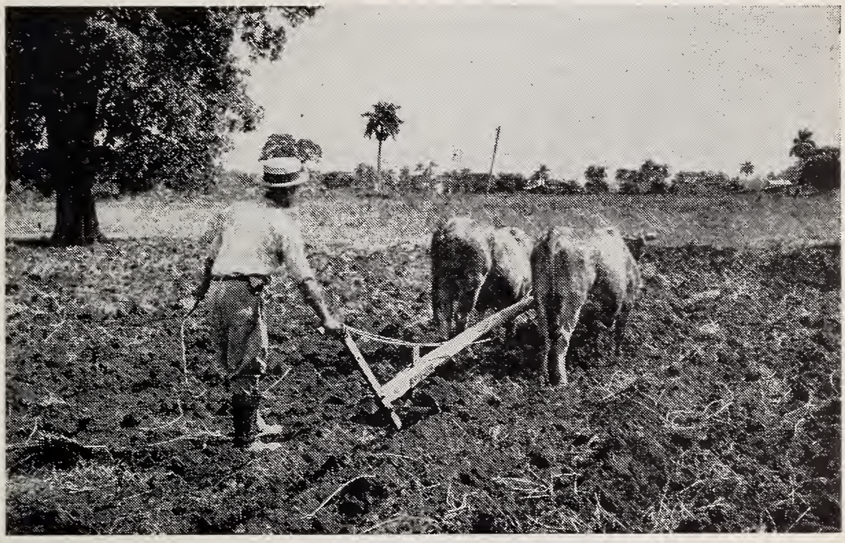

FIGURE 7.—Most farm draft work is done by oxen.

MARKETING, CREDIT, AND COOPERATION

The marketing of the principal agricultural products is described in further detail under the discussion of each crop. Sugarcane is sold directly under contract to the mills. Some other crops, such as tobacco, peanuts, and export vegetables, are purchased directly from the farmers by dealers or shippers, sometimes under contract. Other crops are customarily sold in the nearest village to the local general storekeeper (bodeguero), who acts as a middleman in almost all economic relations between the farmer and the outside world. The storekeeper not only buys the farmer's products and resells them to larger dealers, but also supplies the farmer with groceries, clothing, equipment, etc., largely on credit. Most farmers have very little cash and therefore are strictly limited as to the amount as well as the place of their purchases.

There is no Government system of farm credit in Cuba. Commercial banks, through sugar mills, provide credit for the production of sugarcane not only to the large producers but also to some of the small farmers. With respect to other crops, reference is made to the report of a study in 1934 (*12*) to the effect that agricultural crops for market are generally financed by commercial agents of industrial companies and by local stores or merchants, shackling the producer in such a way that he finds himself compelled to buy and sell to them at prices that are more or less unfavorable to him in direct proportion to his indigency. The nominal rate of interest may not be very high, but the actual charge, or the real interest, is extremely burdensome. The lack of sufficient production credit and the limited market outlet frequently prevent farmers from growing certain crops that would otherwise be profitable.

The marketing of farm products and the purchase of farm supplies have never been developed on a cooperative basis in Cuba. Among the principal reasons for this may be the poorly developed communication and transportation in rural areas, the dependence of the small farms upon credit from the local storekeeper, and the low standard of education in the rural areas. Nevertheless, there are several outstanding examples of successful cooperative enterprises in Cuba; notably the Güines Cooperative Irrigation Society, founded in 1876; a cooperative fire-insurance company in operation about 80 years; and, most important of all, the long-established Spanish regional societies, or Centros. There are 106 of these mutual-benefit associations in Cuba, having an estimated membership of about 400,000. Although one-half of the associations and most the of membership are in Habana, others extend throughout the island. They constitute one of the world's finest examples of cooperative medicine, but they also engage in educational, social, recreational, insurance, and other activities.[12]

PRINCIPAL EXPORT CROPS

Cuban agriculture is based primarily on the production of crops rather than livestock. The most important crops produced in Cuba for export, in the order of their export value, are sugar, sugar byproducts, tobacco, tropical fruit (largely bananas), winter vegetables, henequen, and coffee.

SUGAR

The production of sugar and its byproducts is Cuba's dominant industry. Since the World War sugar and byproducts have accounted for more than 80 percent of the value of all exports and during 1936–40 they were valued at about 121 million dollars annually. In 1939, sugarcane occupied about one-half of all the cultivated land in Cuba.

Cuba was the world's largest producer of sugar until 1932. Since then it has been exceeded only by India, although Cuba continues to be the world's largest exporter. Cuba's share in world sugar production is only about 10 percent, but it supplies more than 20 percent of the sugar entering international trade. Cuban production in 1925 and in 1929 reached a high of 5.9 million short tons (fig. 8 and table 5), which alone is nearly equal to the total consumption in the United States. In the 5 years 1937–41, production averaged only 3.1 million short tons annually. The sugar industry plays such an important part in the entire Cuban economy that changes in either the volume or the price of exports are directly reflected in all phases of the country's import trade and internal trade.

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[12] These societies were originally formed to care for immigrants from various Provinces of Spain. Most of the associations own their buildings, clubs, hospitals, and sanitariums and provide excellent medical care for a fee of not to exceed $2 a month.

Table 5.—*Sugar production and exports, Cuba, 1856–1940*

Period	Production	Exports	Period	Production	Exports
Average:	*1,000 short tons*	*1,000 short tons*	Annual:	*1,000 short tons*	*1,000 short tons*
1856–60	473	---	1925	5,894	4,436
1861–65	611	---	1926	5,602	5,270
1866–70	775	---	1927	5,121	4,622
1871–75	775	---	1928	4,591	4,403
1876–80	578	---	1929	5,857	5,372
1881–85	626	---	1930	5,305	3,773
1886–90	733	---	1931	3,545	2,997
1891–95	1,061	---	1932	2,958	2,959
1896–1900	313	---	1933	2,265	2,735
1901–05	1,065	1,005	1934	2,562	2,791
1906–10	1,564	1,495	1935	2,883	2,825
1911–15	2,584	2,394	1936	2,904	2,839
1916–20	3,932	3,470	1937	3,379	3,011
1921–25	4,751	4,488	1938	3.380	2,868
1926–30	5,295	4,688	1939	3,094	3,052
1931–35	2,843	2,862	1940	3,128	2,259
1936–40	3,177	2,806	1941	2,734	3,573
			1942	[1] 3,804	---

[1] Raw sugar only.

Secretaría de Agricultura de Cuba. zafra de 1939. Cuba Sec. de Agr. Mem. An. 1939, 127 pp. illus.; and Instituto Cubano de Estabilización de Azúcar.

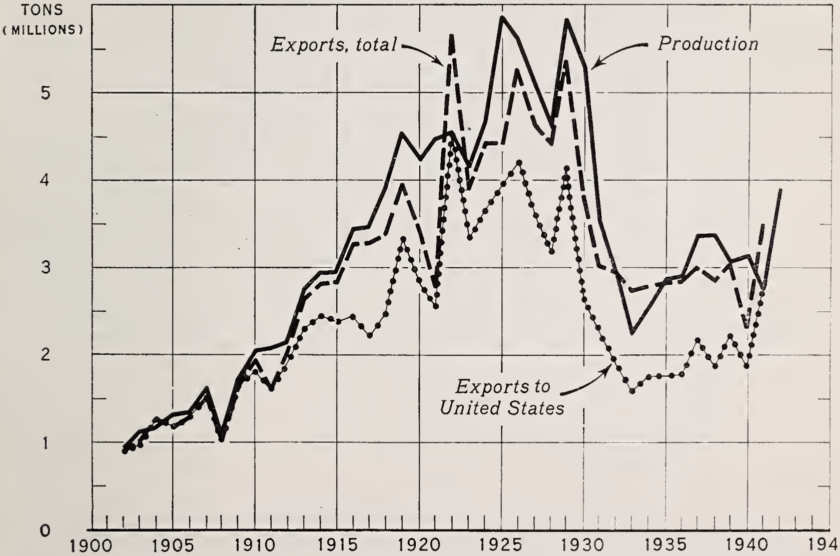

Figure 8.—Sugar production and exports, Cuba, 1902–41. Production does not include molasses and sirups.

OFAR-88

In addition to sugar, Cuba also leads in the production and export of blackstrap molasses, a byproduct of the sugar industry. Exports from Cuba in the years 1936–40 averaged over 157 million gallons annually, valued at 6.5 million dollars, or about 5 percent of the total value of sugar exports. Other sugar byproducts produced in large quantities are invert sirups and high-test molasses (table 6).

Table 6.—*Molasses and sirup production in Cuba, 1902–41*

Year	Total quantity	Year	Quantity		
			Blackstrap molasses	High-test molasses and sirups	Total
	Million gallons		*Million gallons*	*Million gallons*	*Million gallons*
Average:		Annual:			
1902–05	31.2	1935	122.8	59.2	182.0
1906–10	50.7	1936	127.1	116.4	243.5
1911–15	87.8	1937	149.9	207.7	357.6
1916–20	170.6	1938	145.1	89.0	234.1
1921–25	220.1	1939	150.1	100.5	250.6
1926–30	236.5	1940	127.0	179.9	306.9
1931–35 [1]	150.0	1941	102.2	340.1	442.2
1936–40 [1]	278.5	1942	164.7	168.6	333.3

[1] Estimated.

Secretaría de Agricultura de Cuba.

PRODUCTION TRENDS

Sugarcane was introduced into Cuba early in the sixteenth century. Cuban production, however, was on a relatively small scale until the nineteenth century.[13] By 1853, production had reached 322,000 tons and from 1859 to 1890 ranged between one-half and three-fourths of a million tons. The abolition of slavery in the 1880's caused little difficulty, since the colono system developed rapidly to take its place. In the early nineties there was a sharp rise in production to over a million tons, but this was followed by a disastrous fall in 1896–1900 due to the War of Cuban Independence. A sharp upward trend was renewed only after 1902. Subsequently there was little interruption. The reciprocity treaty with the United States insured further expansion of the industry. By 1914 production had risen to 2.9 million short tons, by 1919 to 4.5 million tons, and in 1925 an all-time record of over 5.9 million was attained. Subsequently production was reduced in accordance with restrictions under international treaties, but in 1929, when restrictions were temporarily removed, production again reached 5.9 million tons. New restrictions and the great drop in the world market, especially in the United States market, brought about a rapid decline in Cuban sugar production to a level of about 3 million tons in recent years (table 7). The present mill capacity, as indicated by the total of the maximum production ever attained by each of the 174 mills now in Cuba, amounts to 6.9 million short tons

Table 7.—*Sugar production, 1939–40, and maximum ever recorded in Cuba, by Provinces*

Province	1939	1942	Maximum ever recorded
	1,000 short tons	*1,000 short tons*	*1,000 short tons*
Pinar del Río	118	166	239
La Habana	256	310	518
Matanzas	363	453	760
Las Villas	682	795	1,393
Camagüey	790	941	1,885
Oriente	885	1,139	1,975
Total	3,094	3,804	[1] 6,770

[1] The total of the maximum production of each Province amounted to 6,770,000 tons, but the maximum ever attained in the country as a whole was 5,894,000 tons in 1925.

Secretaría de Hacienda, Dirección General de Estadística.

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[13] The troubled condition of Haiti gave Cuba an opportunity to increase its sugar output. The influx of a new planter class from the revolting Spanish colonies and the decline of coffee production all contributed to enable Cuba to strengthen its sugar industry.

In addition to the changes in volume of production, there has also been an important shift in producing areas. Prior to the World War, the principal sugar-producing areas were in central Cuba, in Las Villas (Santa Clara) and Matanzas Provinces, but when the demand increased during the World War, new lands to the east, in Camagüey and Oriente, were brought under cultivation. In 1913, the production in these new areas amounted to only 30 percent of the total, but it now exceeds that of all the rest of the island; the two eastern Provinces now produce from 52 to 57 percent of the total crop. The three western Provinces, Pinar del Río, La Habana, and Matanzas, are least important; together they account for only 24 percent of the country's total. (See fig. 9.)

ORGANIZATION OF THE INDUSTRY

MILLS

The sugar industry in Cuba is operated as a number of large units called centrals. These consist of large mills, each surrounded by a large acreage of cane to supply the mill. In 1860 there were 1,365 small old-type mills, usually owned by one family.[14] In the 10-year war from 1868 to 1878, most of the mills in the eastern part of the island were destroyed, leaving only 1,190 mills in 1878. Further war and destruction reduced the number to only 207 in condition to operate in 1899. The first large central on modern lines was built in 1902, after which the process of centralization continued rapidly. Many former operators of small mills then became colonos, supplying cane to the new central mills. Since the turn of the century, the number of mills in operation has varied from 133 to 199, and in 1941 was 158. The 16 mills that were idle in the 1941 season had a capacity, at their maximum production, of about 520,000 tons, equal to about 7.5 percent of the total capacity of all the 174 mills now in Cuba.

Table 8.—*Number of sugar mills in Cuba, by volume of production, 1940*

Sugar production per mill (1,000 long tons)	Number of mills	
	At maximum production	At average production 1939–40
	Number	*Number*
Less than 10	7	59
10 to 49	142	111
50 to 99	18	4
100 and over	7	0
Total	174	174

The largest mills are now on the newer lands in Oriente and Camagüey, where modern developments have had free play. The immense size of some of these mills is shown by the fact that one mill (Central Delicias) in 1921–22 attained an output of 340 million pounds of sugar and had nearly 150,000 acres in cane. Most of the mills have a capacity of from 10,000 to 40,000 tons of sugar per season, although with reduced operation during recent years only one-fifth produced

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[14] Registro de Estadísticas de la Intendencia General de Hacienda de la Isla. Ramiro Guerra y Sânchez (*13, p. 46*) estimates the number at about 2,000 mills.

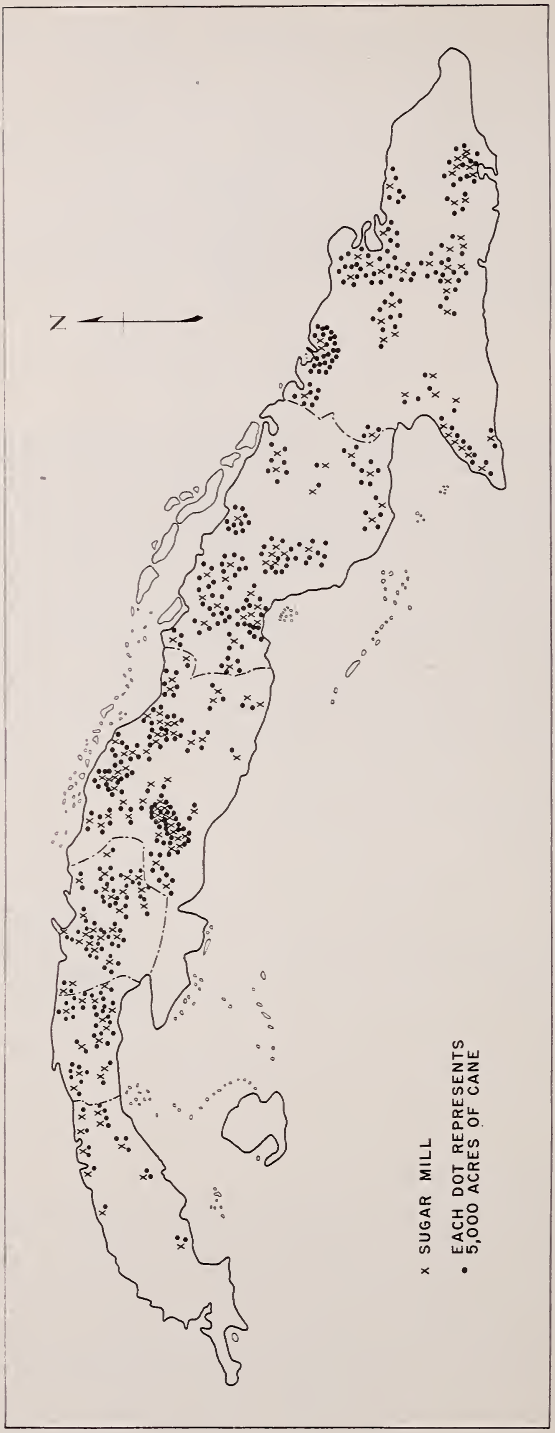

Figure 9.—Location of Cuban sugar mills and acreage in cane, 1939.

more than 20,000 tons a year. Table 8 shows the number of mills according to volume of production.

Construction of large modern mills is expensive,[15] and consequently it is only natural that much foreign capital has been invested and that many of the mills are owned by interests outside of Cuba. Those owned by interests in the United States have accounted for roughly one-half of the total production since the World War, and in 1940 accounted for 56 percent. The fact that most of the mills and their extensive holdings of agricultural land are owned by foreign interests is particularly painful to Cuba's national feeling. Table 9 shows the number of mills according to the nationality of ownership (*8*).

TABLE 9.—*Number of sugar mills in Cuba, by nationality of ownership, 1915–40*

Nationality of ownership	1915	1926	1935	1940
	Number	*Number*	*Number*	*Number*
Cuban	67	101	50	55
United States	43	41	70	67
Spanish	42	16	37	33
Canadian	(1)	(1)	10	10
French	(1)	2	6	3
English	(1)	(1)	4	4
Netherlands	(1)	(1)	2	2
Total	170	184	179	174

[1] Number not specified.

The financing of a sugar plantation was a simple matter in the nineteenth century. The planter bought the land and small mill, sometimes giving a mortgage, which he retired out of earnings. Crop work was financed by sugar merchants who marketed the sugar when made. However, as the mills grew in size this system was replaced, until at present all but a few mills are owned by some sort of corporate enterprise. After the World War there was a tendency for many companies to appeal to a wider investing public through the sale of securities, especially the companies that came under the control of great American banks and security houses.

Practically every mill in Cuba requires loans to cover the dead-season operations, such as planting and cultivating, and to finance the harvesting and milling of the crop. These are secured, in many cases, by mortgages on the entire mill property and in others by crop liens on the growing cane. Crop loans are replaced early in the grinding season by the pledge of sugar certificates.[16] As harvesting proceeds and more sugar is made, sugar certificates also become the basis for loans to pay mill employees and cane cutters.

It was through their involvement in crop financings and loans secured by sugar that the commercial banks were chiefly drawn into the problems of long-term financing.[17] In many cases, they made fresh loans for expansion to protect previous advances. But they also bought properties to combine with those received by foreclosure and issued securities on them. Bankers and investors alike have come to regard this activity as unfortunate.

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[15] Ramiro Guerra y Sánchez (*13*) estimates the total valuation of sugar-mill properties in 1939 to be 364 million dollars. At this figure, the average valuation per mill is about 2.3 million dollars; and it is estimated that about one-fourth of this amount represents land and three-fourths other properties, such as mills, equipment, and railways.

[16] This is effected by the surrender to the creditor of warehouse receipts covering the sugar produced from the cane encumbered by the crop loan.

[17] In 1921 and 1922, when sugar prices dropped from a previous high of 13.4 cents to as low as 2 cents, many sugar mills and sugar lands were taken over by commercial banks through foreclosures.

LAND OWNERSHIP AND MANAGEMENT

Of the island's total area of 27.5 million acres, about 7.6 million acres, or nearly 28 percent, are under the control of sugar interests; yet not over 3.5 million acres have ever actually been used for the cultivation of sugarcane in any year [18] and only 2.26 million acres were in cane in 1941. Mills also need land for roads, pastures, gardens, new plantings, and occasionally for the protection of their water supply or some other objective peculiar to location. Under present conditions, nearly as much land is used for these purposes as for cane. Nevertheless, it is evident that a large proportion of the land held for potential production could well be used for other purposes. The large surplus of landholdings by sugar mills has been an integral part of the policy of extensive agriculture and mill expansion, particularly during the boom period at the close of the World War. Companies ventured on untried soils and accumulated land reserves to be used in case of soil exhaustion and for further expansion.

Ownership of much of Cuba's lands is in the hands of the mill companies, which in 1939 owned 5.6 million acres. Mills controlled an additional 2 million acres through lease from private owners. It is estimated that possibly another 1.4 million acres, owned privately, are in farms of "free" colonos who grow and sell cane to the mills.

The work of growing sugarcane and milling it into sugar was formerly all accomplished by the farmer, but the advent of the modern sugar mills has separated these two operations. The farmers now grow cane usually under contract for sale to the mills. These growers are called colonos. Some own their land, and others operate on rented land. Some large colonos also finance smaller growers, called subcolonos.

From 80 to 90 percent of all the sugarcane is produced by the colonos, whose farms average about 100 acres and rarely exceed 500 acres. Only a relatively small proportion of their acreage is actually in cane for harvest, the remainder being in uncut cane, burned-over cane, other crops, and unused land. About one-third of the colonos, especially the smaller ones, own their land, whereas about two-thirds operate on land owned or controlled by the mills. From 10 to 20 percent of the cane is not grown by colonos but is grown directly by the mills with hired labor.

Since the beginning of the century there has been considerable shift in the method of operation away from administration by hired labor and toward operation by colonos on mill land. Table 10 shows the percentage of the cane handled by each method in 1905, 1932, and 1939.

TABLE 10.—*Percentage of total sugarcane in Cuba produced by administration and by colonos, 1905, 1932, 1939*

Year	By administration	By colonos			Total
		On mill land	On own land	Total	
1905	30	33	37	70	100
1932	24	67	9	76	100
1939	13	69	18	87	100

Cuba Secretaría de Hacienda (*9*).

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[18] Memorandum of Cuban National Sugar Export Corporation, June 15, 1934.

The decline in the share produced by colonos on private land in 1932 was due primarily to their financial difficulties, which in many cases led to their losing their land and becoming colonos on mill land.

Relationships between the colonos and the mills are governed by three distinct types of contracts: (1) Milling, (2) lease, and (3) crop-loan. The milling contract usually provides that the colono must deliver to the mill all the harvestable cane grown on the land covered by the contract. In payment for the cane delivered, the colono receives the equivalent of at least 46 to 53 percent [19] of the sugar obtained by the mill, but in no event does the grower receive less than the equivalent of 5½ percent of the weight of the cane delivered to the mill. The grower may receive payment either in sugar or in its money equivalent, depending on the terms of the contract. Where cash settlement is used, it is based on the Cuban promedio price [20] for raw sugar reported officially from Habana.

The lease contract specifies the rent to be paid, the use to be made of the land, etc. Some mills, particularly in the east, charge only nominal rent and make adjustments in the price paid for the cane, whereas in the western part of the island, land rents are more substantial.

The crop-loan contract is usually combined with the other contracts and secures for the colono credit advances from the mill to pay for cultivation, clearing, and planting during the dead season, and cutting and hauling cane during the grinding season. Some colonos in new areas began operations with a considerable debt to the mills for labor used in clearing ground and planting, and subsequent low sugar prices have kept them in debt. As a result, some of the colonos are carried on the books of the mills as chronic debtors, whose payments for cane are settled by a credit on the company's books and who operate entirely from advances they are able to obtain. Yet the colono, even in his precarious status as enterpriser, is the most substantial element of the rural community and is a very important factor in the Cuban sugar industry.

LABOR

About one-third of all the laborers in Cuba are employed in the sugar industry. Naturally, their prosperity or poverty varies directly with the size and value of the sugar crop produced. Formerly, when production was much larger than during recent years, the grinding season extended over about 5 months, in the period December to May, after which the rainy season makes harvesting operations difficult. With smaller sugar production during recent years, the grind-

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[19] Variations depend on (1) the mill's recovery of sugar during the period when the cane is being delivered; (2) whether the cane was grown on land controlled by the mill or on other land; and (3) whether the colono pays the mill more or less than 45 cents per acre rent. The percentages paid to colonos are determined as follows:

Sugar recovery	*Cane grown on company land and rent 45 cents per acre or less*	*Cane grown on other land or rent more than 45 cents per acre*
	Percent	*Percent*
Not more than 12 percent	48	53
Between 12 and 13 percent	47	52
More than 13 percent	46	51

[20] The promedio price is based on the daily New York and London c. and f. prices and the Cuban domestic price adjusted to f. o. b. prices at Cuban ports.

ing season of most mills has been shortened roughly to 2 months, during the period January to March, because it is much more economical for mills to operate at near their normal capacity for a shorter season than to operate at a fraction of their normal capacity. During the remainder of the year, only a very few men are needed compared with the number employed during the grinding season.

No exact statistics are available as to the number of laborers in the sugar industry, but for 1939 it is estimated at about 585,000, of which about 10 percent, or 60,000, were millworkers and about 525,000 were fieldworkers [21] engaged in growing the cane and cutting and hauling it to the mills.

Millwork includes everything associated with the operation and care of the mill, varying from cleaning to highly skilled mechanical work. Wages vary from 1 to 6 dollars a day, with minimum rates prescribed by law. In addition to the monetary wages, millworkers usually receive housing, running water, electric light, and medical services. The number of millworkers during the grinding season totals about 60,000, or an average of nearly 400 per mill. In addition, there are the families of some of the workers, the administrative staff of the mill, and tradespeople. Some mills have schools, stores, savings banks, motion-picture houses, social clubs, and recreation grounds. Thus the batey (sugar plant and surrounding houses) constitutes a sizable industrial village.

Fieldwork consists primarily of growing, cutting, and hauling the cane to the mill. Minimum-wage rates are specified by law; unskilled laborers receive not less than $1.30 a day (effective in April 1942), and for cane cutting and hauling a rate equal to the value of from 50½ to 52¼ pounds of sugar per 2,536 pounds (100 arrobas) of cane handled. At sugar prices prevailing in 1940–41, cutters and haulers earned from $1 to $1.50 a day, varying according to (1) the quantity of cane handled and (2) the promedio price of sugar. Total wages for the entire season, of course, depend upon the length of the season, that is, the quantity of sugar to be made and exported. Because of the short season, the total income for most fieldworkers is very small. Furthermore, they lack many of the nonmonetary benefits received by millworkers. Housing is generally poor, as are also sanitary conveniences, school facilities, etc.

Labor unions of an extensive character were not established until the strike of 1933–34, although there were labor disturbances in 1920, 1925, and 1931. Since 1934, the majority of mills have signed contracts, recognizing workers' syndicates and agreeing to deal with them. The unions have been largely industrial, embracing all classes of labor in the mill and sometimes including several mills in a union. Through the medium of these unions, workers have bargained for increased wages, and a considerable number of companies have agreed to contracts that institute a closed shop of a rigorous character. Some other contract features provide for an 8-hour day, workmen's compensation, improved housing, water supply, school facilities, land for minor crops and water to irrigate them, free trade on the bateyes, and group medical service, partly supported by 1-percent levies on wages. Some mills have granted all these conditions, while others have held out on some of the points. It is clear that mill managers must give consideration to issues presented by organized labor, and if sugar prices rise, the pressure for higher wages will increase.

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[21] According to the Anuario Azucarero de Cuba, 1940 (8), the number of fieldworkers on mill lands in 1939 is estimated at 444,000. On this basis, an additional 80,000 were employed for cane on private lands.

GROWING SUGARCANE

Cane requires a warm climate, good soil, and considerable moisture. The latter is particularly important during the growing season, whereas dry and cooler weather is desirable during the ripening season and harvest. Conditions in Cuba are excellent for economical production. The principal climatic disadvantages are that the rainfall is not always sufficient for optimum results and that the island lies in a hurricane belt with occasional damage to the growing crop in the season of August to October.

Cuba has extensive areas of good soil excellent for cane. Best adapted are those that are fertile, deep, and fairly well drained, yet with capacity to hold moisture. Soils in some places have been producing cane for over a hundred years without the application of commercial fertilizer. Matanzas red clays are extensively used for cane, as well as the gray and black sandy clays, particularly in the eastern part of the island.

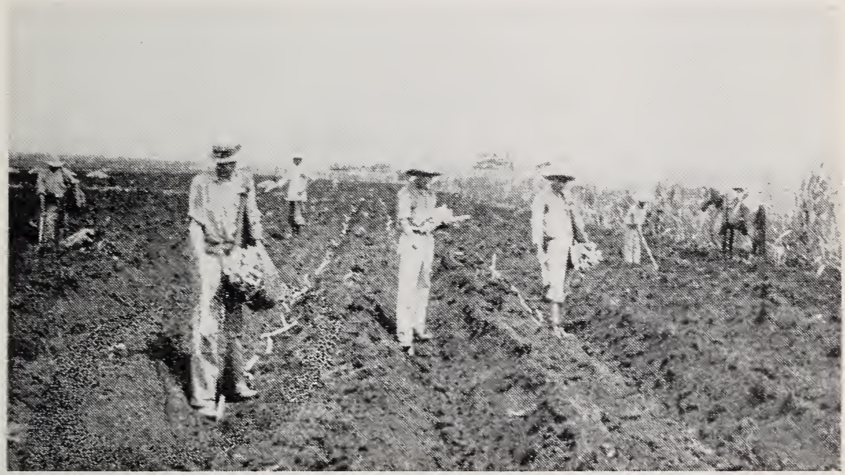

FIGURE 10.—Planting sugarcane. Cane is replanted only every 5 to 20 years.

Cane is planted by placing pieces of cane in the ground (fig. 10). These sprout at the joints and produce cane ready for harvest in 12 to 15 months. After that, the cane grows perennially, with new sprouts from the same root system producing a crop every 12 months for a number of years until the yield gradually declines to a point where it becomes more economical to replant it.[22] The first crop produces the highest yield and is called plant cane, while the subsequent crops from the same planting are called ratoons.

Yields could be materially increased through the application of fertilizer and thorough irrigation; but, with the existing low prices for Cuban sugar, it is not profitable to go to the additional expense incident to intensive production. If production is to be increased, it is usually more economical to expand onto additional land than to add to the expense of production on existing land.

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[22] During the 5 years 1935-39, the average acreage of new cane planted each year was only 8 percent of the acreage harvested.

Yields of cane vary widely as between the first crop (plant cane) and the later crops (ratoons). A yield of 35 to 45 short tons an acre can be obtained from plant cane; but the average yield from 20 percent plant cane and 80 percent ratoons varies between 16 and 20 tons. Although the yield of all cane averages 17.2 short tons, it varies widely from mill to mill in individual years, from 6 tons at one mill to as high as 31 tons at another. With an average sugar extraction of about 12 percent, the average yield of raw sugar is 4,210 pounds an acre. Table 11 shows the 10-year average yields per acre of cane and raw sugar (96°) in the principal areas supplying sugar to the United States. The sugar yields in Cuba even without fertilizer or irrigation are higher than in the United States[23] and the Philippines, although less than those obtained by much more intensive methods of production in Puerto Rico and Hawaii. The high yields in Hawaii are obtained through fertilizing, irrigation, and more frequent replanting.

TABLE 11.—*Average yield per acre of cane and raw sugar in various producing countries, average 1931–40*

Country	Growing time to produce a crop [1]	Cane	Raw sugar	Percentage raw sugar is of cane
	Months	*Short tons*	*Pounds*	*Percent*
United States	[2] 7 to 9	18.5	3,011	8.15
Philippines	11 to 14	15.7	3,541	11.28
Cuba	[3] 12 to 15	17.2	4,210	12.24
Puerto Rico	12 to 18	25.9	7,092	13.68
Hawaii	14 to 22	63.7	14,946	11.73

[1] Estimates by Bureau of Plant Industry.
[2] Cane in Louisiana is produced in 8 to 9 months, whereas in Florida the season is about 12 months.
[3] The first crop commonly requires 15 months, but subsequent ratoon crops are cut every 12 months.

Planting is done by hand and is an expensive operation, but it is necessary to replant only a small percentage of the total acreage in any year. Before planting, the land is customarily prepared by burning and then by plowing with oxen or tractors and by harrowing. Furrows are opened and pieces of cane stalks, each with several joints, are placed in the furrows and covered. Seeds from the sugarcane plant cannot be used for planting, because they do not produce cane with the same characteristics as the parent plant. Several varieties of cane are grown, but the principal variety now is P. O. J. 2878.[24]

Most of the cane is planted from September to November before the beginning of the winter dry season, but some spring cane is also planted in May or June, particularly in the eastern part of the island where excessively dry winters injure fall plantings. Sometimes other crops, such as beans, are planted between the rows of cane, but these are harvested before the cane grows very tall. With sufficient moisture, young cane appears above the ground about 2 weeks after planting.

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[23] Yields in Louisiana, which supplies about 80 percent of the cane sugar grown in the United States, average only 17.3 tons of cane and 2,902 pounds of sugar per acre, but in the small Florida area yields are higher, averaging 33.5 tons of cane and 6,867 pounds of sugar.

[24] The original cane brought to Cuba was the Creole, and later Otaheite and Batavian varieties were introduced. A Batavian cane known as Crystallina led all other varieties in Cuba until the early 1930's. P. O. J. varieties are named for Proefstation Oest Java, the experimental station in East Java that has produced renowned disease-resistant, high-yielding, hybrid canes.

The land must then be cultivated or hoed to keep down the weeds until the cane is tall enough to shade the ground.[25]

Harvesting requires a great deal of labor from January through March. The dense, tall, and heavy growth of cane must be cut off by hand (fig. 11)[26] at the base of the stalk with a long knife, or machete. The leaves and top are then stripped off, and the cane is cut into lengths of about 4 feet and thrown into piles. It is loaded onto large, heavy two-wheeled carts drawn by six or eight oxen (fig. 12) and hauled to the mill or, in most cases, to the nearest railroad siding, where it is transferred by derrick to railroad cars (fig. 13), which haul the cane to the mills. Long trainloads of cane are then pulled to the mills to provide a steady supply of cane for continuous crushing 24 hours of the day.

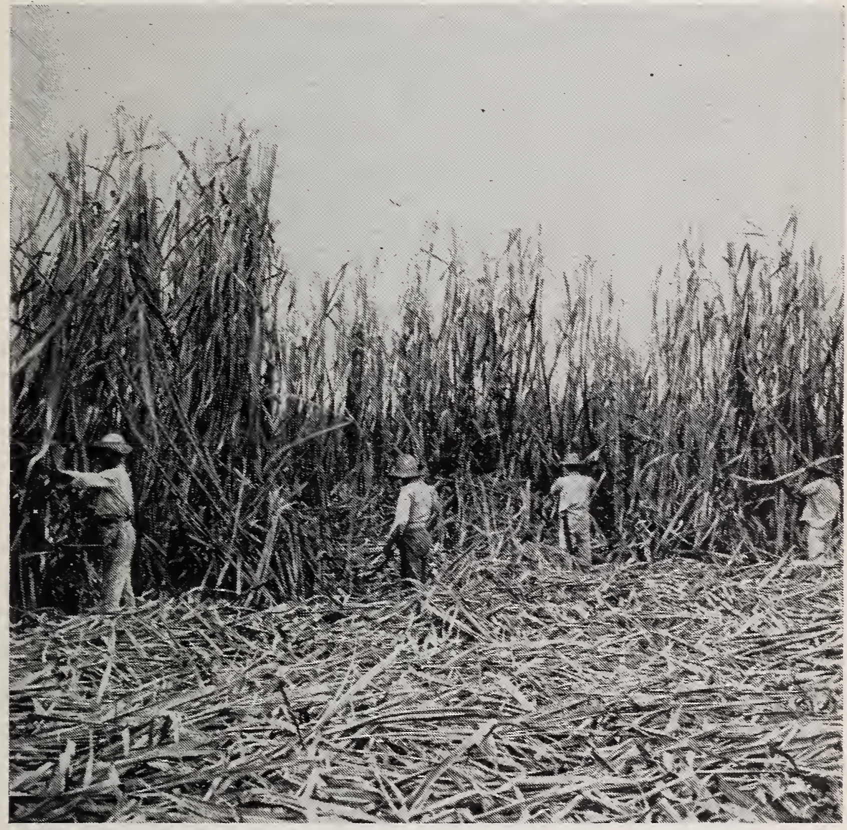

FIGURE 11.—Harvesting sugarcane is done entirely by hand.

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[25] Cane is subject to several diseases, among which are the mosaic, or mottling, disease, the rind disease, red rot of the stalk, and the pineapple disease. Insect pests also damage cane; the moth stalk borer leaves conspicuous holes in the stalk; and, while its direct damage is not serious, it induces fungus infection and subsequent deterioration of the sugar content. Caterpillars also frequently damage cane, particularly young cane.

[26] Cane-cutting machines have been invented to do the work of a large number of persons, but their operation is expensive and not entirely satisfactory. None are used in Cuba.

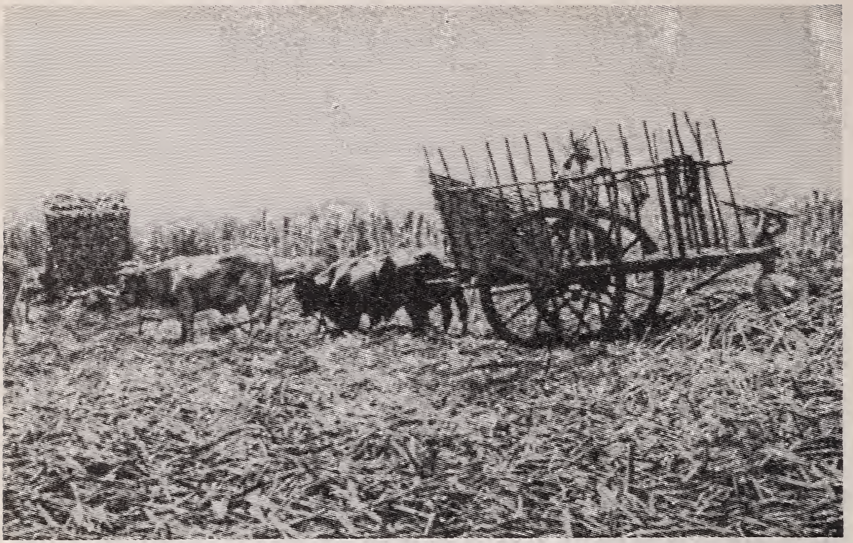

FIGURE 12.—Sugarcane is hauled out of the fields with carts drawn by six to eight oxen.

Cars hold from 10 to 30 tons of cane, depending upon their size, the gage of the railroad, and the type of cars used. Because of the heavy weight of the cane, the soft soil, and the absence of hard roads, mills rely almost entirely on railways for transportation from farm

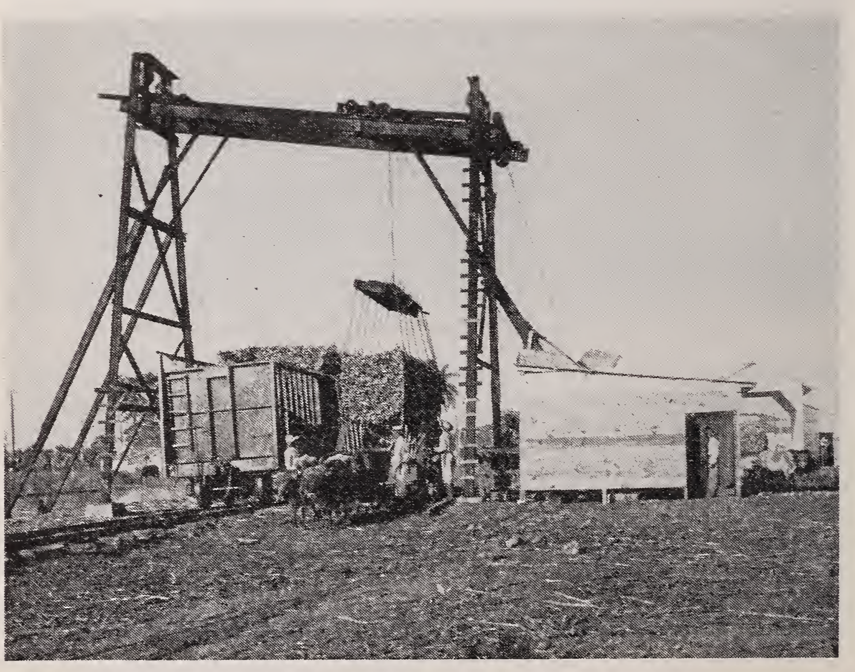

FIGURE 13.—Reloading cane from oxcarts to railway cars.

to mill (fig. 14). In some cases, the network of private railway mileage runs as high as 380 miles per mill.[27]

The leaves and tops of the cane plant are left on the ground to provide valuable feed for oxen and other cattle, to conserve soil moisture and fertility, and to prevent weed growth.

MILLING AND REFINING

On arrival at the mills, the cars of cane are weighed and the cane is dumped into a conveyor that carries a steady supply to the rows of gigantic rollers that grind and crush the cane and extract the juice. The fibrous residue (bagasse) is conveyed to furnaces, where most of it is used as fuel for the operation of the mill. The juice is then clarified to remove various impurities and then piped to the evaporators. Other impurities and sediment are removed by filters. The water content is reduced further by boiling the juice in vacuum pans until it crystallizes. The crystallized sugar is then drawn into centrifugal machines, which separate the molasses from the sugar. This raw sugar is the final product of the mills. It is in light brown, rather large, moist crystals and contains about 96 percent pure sugar.[28] Raw sugar is packed in heavy jute bags with a uniform weight of

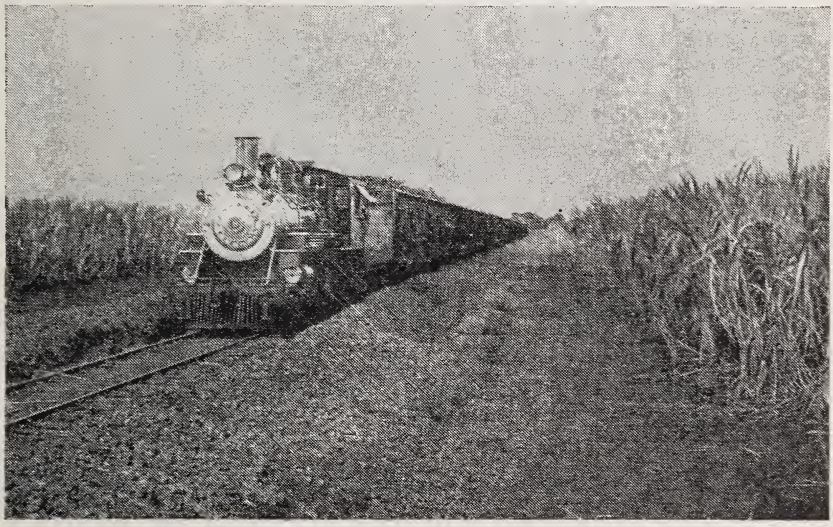

FIGURE 14.—Trainloads of cane are hauled to the mills, or centrals.

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[27] Only 6 of the 174 mills have no private railroads. The average railway equipment per mill in 1939 was 45 miles of track, 6 locomotives, 5 other motors, and 215 cars.

[28] The following shows the average quantity of sucrose, or pure sugar, in 100 pounds of cane in 1937–39 and the quantities recovered in molasses and raw sugar:

	Pounds
Total in cane	13.92
Not extracted (in bagasse)	0.83
Extracted in juice	13.09
Loss in manufacturing	0.17
Recovered—total	12.92
In final molasses	1.07
In raw sugar	11.85

The average yield of raw sugar (96°) was 12.39 percent of the weight of the cane.

325 Spanish pounds (329.59 English pounds) and is stored in the mill warehouses until it is to be delivered.

In order to prepare white refined sugar for the retail trade,[29] it is necessary to remelt the raw sugar and purify it by filtration through bone or vegetable charcoal and by chemical actions and then to recrystallize it. This operation is carried on in an entirely separate plant from the mill that produces the raw sugar. Most of the sugar shipped to the United States is in the raw form and is refined after arrival. The first refining on a commercial scale in Cuba began in 1905, but there was no material expansion until after 1925. By 1932 it had reached a peak of about 600,000 tons. In 1940 about 387,000 tons of refined sugar was exported and about 227,000 tons was consumed domestically. In other words, only about one-fifth of the raw sugar produced in Cuba is now refined there. In 1940 there were 21 refineries in Cuba, of which 16 had export quotas; however, 3 or 4 of the largest supplied about three-fourths of the total. Refined sugar on an open market usually sells at from one-half to three-fourths of a cent per pound higher than raw sugar. Some turbinated [30] sugar is also produced for direct consumption, especially in canning and candy industries. It is purified by a short mechanical process and contains slightly more impurities than ordinary refined sugar. Exports in 1940 totaled about 25,000 tons, produced by 8 mills under quota.

Several kinds of molasses and sirups are manufactured. Blackstrap, or final molasses, is a byproduct from the manufacture of raw sugar, and its production is therefore proportional to the quantity of sugar produced. It is obtained from the centrifugals when the crystalline raw sugar is removed. About 2.3 gallons of blackstrap result from the manufacture of each 100 pounds of raw sugar. It is a heavy, dark, strong-flavored product, being about one-half sugar and containing many minerals. It is sold principally for the manufacture of alcohol and for cattle feed. Production during recent years has ranged from 102 to 165 million gallons annually. The average export price is low, about 2¾ cents a gallon in 1939.

Rich molasses, or high-test molasses, and invert sirups are separate products obtained directly from the cane and are not byproducts from the manufacture of raw sugar. They are obtained before the sirup is allowed to crystallize and consequently contain all the sugar (about 9.4 pounds of sugar per gallon of rich molasses) in addition to the impurities that normally make up the bulk of blackstrap molasses. These products are almost entirely exported for use in the manufacture of alcohol. Prices for these products are usually lower than for raw sugar, and consequently they are generally produced after the full quota of raw sugar has been made, thus permitting the mills to operate for a longer period and providing a market for additional cane. Production of these sirups began in volume in 1935 and reached a peak of about 332 million gallons of rich or high-test molasses and 8 million gallons of sirup in 1941. The average export value of rich molasses in 1939 was 5 cents a gallon and that of sirup 15½ cents.

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[29] About 107 pounds of raw sugar are required to produce 100 pounds of refined sugar. (Yield equals 93.458 percent of raw.)

[30] About 105.25 pounds of raw sugar required to produce 100 pounds of turbinated sugar. (Yield equals 95.012 percent of raw.)

MARKETING

The marketing channels of Cuban sugar vary widely, depending upon the ownership of the mills and, to some extent, upon the use to be made of the sugar. The bulk of the raw sugar entering the American market is sold to refiners through brokers. Some mills are affiliated directly with American refiners; in such cases, the "sale" is merely a bookkeeping transaction within the organization. There are some 2 dozen sugar brokerage houses in the United States and Cuba which have specialized in this activity for many years. Commissions average about one-eighth of 1 percent for sampling and grading and one-fourth of 1 percent for the sale. Since brokers' earnings on each sale depend on the price, it is to their interest to obtain a good price. The great shrinkage in the volume of production and price of Cuban sugar has meant reduced earnings for these houses. Moreover, mill consolidation has concentrated the business in the hands of a few firms, closely identified with the controlling banks and corporations.

Most of the raw sugar is shipped to the refineries along the Atlantic coast. Some 400,000 tons of raw sugar are sold for direct consumption by tobacco manufacturers, bakers, and candy and ice-cream makers, but most of the direct-consumption sugar is in refined form. Some raw sugar is sold originally to second hands, that is, operators on the Sugar Exchange who take delivery of sugar in settlement of future contracts. These operators are usually engaged in the sugar industry in some part of the world and must eventually sell to refiners. They form a link in the marketing process and enlarge the field of competition from a short-time point of view.

DOMESTIC CONSUMPTION

The consumption of sugar in Cuba in the past two decades, as officially estimated, has not exceeded 177,000 short tons, or only about 6 percent of Cuba's average annual production during recent years. Actual consumption, however, is believed to be somewhat higher as indicated by the official estimate of 227,000 tons allotted for domestic consumption in 1942.

Refined sugar for domestic consumption is subject to a tax of 1½ cents a pound. Efforts to increase consumption, especially by setting up sugar-utilizing industries, such as the manufacture of candy, have not been very successful. Cuba must therefore rely on selling about 95 percent of its sugar to other countries. The following tabulation shows official local consumption since 1911.[31]

Average:	*1,000 tons*	Year:	*1,000 tons*
1911–15	93	1936	152
1916–20	106	1937	152
1921–25	120	1938	150
1926–30	152	1939	158
1931–35	153	1940	168
1936–40	156		

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[31] Anuario Azucarero de Cuba (*8*). Official consumption figures are not entirely complete. In commenting on an apparent heavy drop in consumption in 1932, the National Sugar Export Corporation stated that this figure did not represent total consumption. Sugar produced but unreported forfeits its right to receive export permits but may enter local consumption.

EXPORTS

Sugar and sugar products exported from 1902 to 1940 accounted for 80 percent of the total value of all Cuban exports, and in one year, 1920, accounted for 92 percent. Sugar exports increased almost steadily from 0.8 million tons to nearly 4 million tons in 1919 and more than 5 million tons in 1922, 1926, and 1929. The value of exports increased from 31 million dollars in 1902 to a peak of more than 732 million dollars in 1920. Exports declined sharply during the depression of 1931–33 and have recently (1936–41) averaged about 2.9 million tons. With continually declining prices, the value of exports of sugar and related products dropped from the extreme high peak in 1920 to only 58 million dollars in 1932, but has regained a level of 96 to 148 million during recent years (1936–40).

Until about 1926 raw sugar represented between 97 and 98 percent of the value of exports of the sugar industry, but since that time refined sugar and sirups have increased in importance (see table 12). During the past 5 years (1936–40), raw sugar accounted for only 70.5 percent of the total value, whereas refined represented 17 percent, molasses and sirups 11.5 percent, and distilled products 1 percent.

TABLE 12.—*Sugar and sugar products exported from Cuba, 1902–41*

Period	Raw sugar		Refined sugar		Molasses and sirups		Distilled products		Total
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value
	1,000 tons [1]	*1,000 dollars*	*1,000 tons* [1]	*1,000 dollars*	*1,000 gallons*	*1,000 dollars*	*1,000 gallons*	*1,000 dollars*	*1,000 dollars*
Average:									
1902–05	1,035	48,442	0	0	25,294	768	1,239	240	49,450
1906–10	1,436	70,433	0	0	38,943	910	1,465	302	71,645
1911–15	2,416	127,261	7	415	57,744	1,869	2,878	676	130,221
1916–20	3,621	424,469	7	1,202	152,069	5,700	4,019	2,331	433,702
1921–25	4,518	305,838	7	564	168,901	6,129	2,674	1,305	313,836
1926–30	4,508	194,350	222	11,813	221,338	9,667	1,934	1,323	217,153
1931–35	2,374	57,190	392	13,578	147,805	5,258	1,460	1,554	77,580
1936–40	2,440	84,616	391	20,324	273,870	13,836	435	1,228	120,004
Annual:									
1936	2,516	89,800	395	22,791	254,681	12,940	717	1,341	126,872
1937	2,625	104,845	363	22,441	317,576	19,309	502	1,574	148,169
1938	2,564	82,397	347	17,374	217,809	11,552	496	1,061	112,384
1939	2,601	84,216	468	21,633	257,064	10,221	238	1,020	117,090
1940	1,921	61,920	387	17,382	322,222	15,160	505	1,085	95,547
1941 [2]	3,134	118,236	426	19,686	442,565	27,726	762	1,242	166,890

[1] Short tons.
[2] Preliminary.

Com. Exterior, Cuba Min. de Hacienda, Dir. Gen. de Estadís.

Approximately two-thirds of all the exports of Cuban sugar are usually shipped to the United States. (See table 13.) Because of the higher price and the larger percentage of refined sugar, the United States market is even more important from the standpoint of value of exports, accounting for 70 to 85 percent. The remainder is sold almost entirely to European countries, of which the United Kingdom is by far the most important, usually taking 20 to 25 percent of total exports. Other European countries, such as Belgium, France, Switzerland, and the Scandinavian countries, formerly took about 6 percent. Other parts of the world account for only 2 to 4 percent of total exports, small quantities being shipped to Canada and occasionally to China, Japan, and India.

TABLE 13.—*Sugar exports (raw plus refined) from Cuba, by country of destination, 1929–40*[1]

Countries	1929		1932		1936		1937		1938		1939		1940		1941	
	1,000 tons	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*	*1,000 tons*	*1,000 dollars*
United States	4, 320	161, 812	1, 908	38, 949	1, 847	91, 798	2, 177	107, 073	1, 990	80, 507	2, 215	82, 318	1, 883	66, 525	2, 867	119, 023
United Kingdom	870	30, 477	742	10, 997	795	15, 454	579	13, 730	661	13, 599	524	12, 633	239	6, 482	502	13, 524
Belgium	32	1, 227	22	287	10	185	78	2, 126	86	1, 806	50	1, 272	22	654	0	0
France	151	4, 909	104	1, 595	100	2, 126	45	1, 481	60	1, 292	48	1, 251	31	1, 191	0	0
French Morocco	(2)	(2)	(2)	(2)	33	536	25	665	32	748	12	307	11	309	0	0
Switzerland	(2)	(2)	(2)	(2)	10	146	18	449	15	324	34	1, 384	7	215	0	0
Canada	53	2, 327	23	329	3	55	14	338	1	41	8	371	24	588	67	1, 842
Sweden	38	1, 330	31	436	5	96	13	476	5	99	5	151	0	0	(2)	(2)
Norway	(2)	(2)	(2)	(2)	15	282	12	254	13	291	50	1, 907	23	1, 306	0	0
Other countries	81	2, 767	101	1, 380	93	1, 913	27	693	48	1, 064	123	4, 256	68	2, 032	125	3, 533
Total	5, 545	204, 849	2, 931	53, 973	2, 911	112, 591	2, 988	127, 285	2, 911	99, 771	3, 069	105, 850	2, 308	79, 302	3, 561	137, 922
Percentage to United States	77. 9	79. 0	65. 1	72. 2	63. 4	81. 5	72. 9	84. 1	68. 4	80. 7	72. 2	77. 8	81. 6	83. 9	80. 5	86. 3

Com. Exterior, Min. de Hacienda, Dir. de Estadís; and Cuban Ministry of Agriculture.

[1] Quantity in short tons.
[2] Not separately reported.

In 1940, on account of the war, most European countries rationed sugar to curtail civilian consumption and also imposed rigid controls over imports through licensing systems. In that year, 81.6 percent of Cuba's sugar exports were to the United States and only 10 percent to the United Kingdom. In 1941 about 80 percent were to the United States, 14 percent to the United Kingdom, and only 6 percent to other countries.

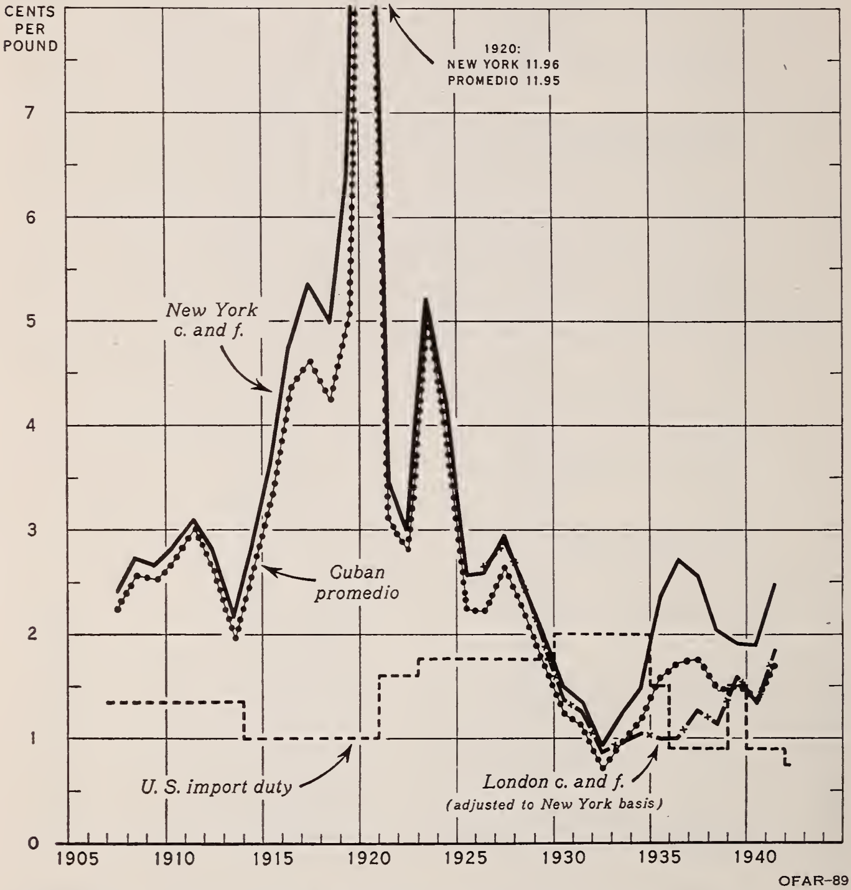

FIGURE 15.—Average annual sugar prices and United States duty on Cuban sugar, 1907–41

Exports of blackstrap molasses, worth from 4 to 10 million dollars annually during recent years, have been almost entirely (from 83 to 99 percent) to the United States. The only other market occasionally of consequence has been the United Kingdom. Exports of high-test molasses and sirups formerly had a total value about equal to that of blackstrap molasses and were divided about equally between the United States and the United Kingdom. In 1940 and 1941, however, the exports of high-test to the United States increased sharply.

PRICES

Raw-sugar prices (average annual) in Cuba have varied widely from less than 1 cent to about 12 cents a pound. (See fig. 15.) During the World War, prices rose sharply from 2 cents in 1913 to 4.6 cents in 1917, when prices were stabilized through the United States purchase of the entire Cuban crops of 1918 and 1919.[32] In 1920, immediately after the World War, supplies were small and Cuban prices soared to an average of 11.95 cents for the year. After that, with sharply increasing world production and restricted export markets, prices in Cuba declined to the ruinously low point of 0.71 cent for the depression year 1932. Various measures to relieve this situation resulted in restoring the Cuban average price to 1.56 cents during the 5-year period 1936–40. For 1941 the Cuban price averaged 1.69 cents [33] and in 1942, 2.51 cents per pound.[34]

The sugar-quota system on the United States market, established in 1934, has contributed much toward improved prices in Cuba. Before the quota system was established, prices paid for Cuban sugar were determined primarily by the world market price; but since the quota system has been in operation, the quantity of Cuban sugar that may be sold in the United States market receives a price considerably higher than the world price as reflected by the London market (table 14).

TABLE 14.—*Prices of Cuban sugar* [1] *and molasses,*[2] *annual averages 1910–41*

Year	Raw sugar—96°					Refined sugar, New York price less discount	Blackstrap molasses, f. o. b. New York
	Official (promedio) Cuban [3]	C. and f. New York	C. and f. London [4]	Spread New York over London	Duty paid New York		
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1910	2.72	2.84	----------	----------	4.19	4.97	----------
1911	3.02	3.10	----------	----------	4.45	5.35	----------
1912	2.61	2.81	----------	----------	4.16	5.04	----------
1913	1.95	2.16	----------	----------	3.51	4.26	----------
1914	2.64	2.87	----------	----------	3.93	4.66	----------
1915	3.31	3.63	----------	----------	4.63	5.52	----------
1916	4.37	4.76	----------	----------	5.76	6.87	----------
1917	4.62	5.34	----------	----------	6.34	7.76	----------
1918	4.24	5.00	----------	----------	6.00	7.78	----------
1919	5.06	6.36	----------	----------	7.36	9.16	----------
1920	11.95	11.96	----------	----------	12.96	15.25	----------
1921	3.10	3.46	----------	----------	4.81	6.14	----------
1922	2.80	3.00	----------	----------	4.64	5.93	----------
1923	5.03	5.22	----------	----------	6.98	8.31	----------
1924	3.82	4.17	----------	----------	5.93	7.40	----------
1925	2.24	2.56	----------	----------	4.32	5.47	11.40
1926	2.22	2.59	2.62	−0.03	4.35	5.48	6.45
1927	2.64	2.96	2.91	+.05	4.72	5.81	7.50
1928	2.18	2.45	2.49	−.04	4.21	5.52	8.43

[1] Per pound.
[2] Per gallon.
[3] The promedio price, on the basis of which growers are paid for cane delivered, is basically an average of American, London, and local Cuban market prices, less shipping and delivery expenses.
[4] London quotations on New York, c. and f. basis.

U. S. Tariff Commission, Statistics on Sugar, March 1940.

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[32] The U. S. Food Administration contracted to purchase the entire export surplus of Cuba's 1918 crop for the United States and the Allies at 4.6 cents per pound, f.o.b. Cuba. Similarly the U. S. Sugar Equalization Board contracted to purchase the 1919 crop at 5.5 cents per pound.

[33] On August 12, 1941, the U. S. Office of Price Administration and Civilian Supply fixed the maximum price for raw sugar at $3.50 per 100 pounds, which, less 90 cents duty and about 45 cents costs and freight, was equivalent to about $2.15, f. o. b. Cuba. This was about 30 cents below the current Cuban price on the preceding day.

[34] On January 5, 1942, the ceiling price of raw sugar in the United States was raised to $3.74 New York basis, which, with a reduced duty and freight was equivalent to $2.65, f. o. b. Cuba, the price at which the United States contracted to purchase the 1942 Cuban crop.

TABLE 14.—*Prices of Cuban sugar and molasses, annual averages 1910–41*—Con.

Year	Raw sugar—96°					Refined sugar, New York price less discount	Blackstrap molasses, f. o. b. New York
	Official (promedio) Cuban	C. and f. New York	C. and f. London	Spread New York over London	Duty paid New York		
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1929	1.72	2.00	1.91	+.09	3.76	5.00	11.65
1930	1.23	1.48	1.36	+.12	3.37	4.62	11.62
1931	1.11	1.34	1.25	+.09	3.34	4.41	7.00
1932	.71	.93	.87	+.06	2.93	4.01	5.00
1933	.97	1.23	.97	+.26	3.23	4.32	6.70
1934	1.19	1.48	1.04	+.44	3.00	4.43	5.60
1935	1.58	2.33	1.00	+1.33	3.23	4.85	8.10
1936	1.73	2.71	1.00	+1.71	3.61	4.69	7.80
1937	1.76	2.55	1.27	+1.28	3.45	4.74	7.25
1938	1.45	2.04	1.14	+.90	2.94	4.48	6.67
1939	1.51	1.91	1.59	+.32	2.95	4.57	5.33
1940	1.36	1.89	1.33	+.56	2.79	4.34	6.58
1941	1.69	2.48	1.85	+.63	3.38	4.92	9.69

GOVERNMENT MEASURES AFFECTING THE SUGAR INDUSTRY

A number of government measures, both in Cuba and in other countries, have greatly affected the Cuban sugar industry. The difficulties in the sugar industry date from 1925, when world supplies began to exceed requirements. As a result, prices fell and Cuban sugar at New York dropped from 2.83 cents a pound in January to 1.95 cents in October. Alarmed by the situation, Cuban producers and the Government in 1926 inaugurated a remarkable series of efforts to control the supply of sugar.

In the following years, the overexpanded industry struggled against forces beyond its control (*12*):

> Cuba has experimented with restricted production, delayed production, and market quotas; it has had pools and cartels, single sellers and a near valorization scheme; it has acted unilaterally and has sought international cooperation; and it has experienced spasms of complete laissez-faire. Each effort seemed to lead the sugar industry closer to its doom.

VERDEJA ACT

The first step toward control was taken with the passage of the Verdeja Act on May 3, 1926. It provided for a 10-percent cut in the crop and was supplemented by decrees that ended the cutting of virgin forest for the extension of cane plantings. Quotas were assigned to individual mills in proportion to expected crops. These measures brought a rise in New York prices for several months, but production soon increased in other parts of the world and forced Cuba to change its policy.

SUGAR DEFENSE ACT

The Cuban Government then decided to solicit the cooperation of other exporting countries in a common effort to limit production and to adopt positive measures for marketing. The Sugar Defense Act of October 4, 1927, set up two institutions to effect this policy: (1) A national Sugar Defense Commission to estimate the amount that could be marketed abroad, to recommend any restrictions to be adopted, and to attempt to make agreements with other countries, and (2) a Sugar Export Co., in which all mill owners were compulsory shareholders, to control all sugar marketed outside the United States and to administer a system of production quotas.

Agreements were reached with Germany, Czechoslovakia, and Poland. Cuba reduced its 1928 crop to 4 million tons. In the American market, however, there was a tremendous increase in the supply of United States insular sugar, and prices declined. At the end of August 1928, the Cuban Government indicated that there would be no crop control or export restriction in the coming year. The announcement came before the crop was sold; prices sank sharply, and the holders of Cuban sugar lost millions of dollars.

The American corporations took action by forming the joint Foreign Sales Syndicate, which sold 600,000 tons of sugar in 5 months. The success of this agency led the Government of Cuba to similar action.

SUGAR SALES AGENCY

On July 26, 1929, the Sugar Sales Agency was organized by presidential decree. It was directed by a board elected by the mill owners and undertook the sale of the 1930 crop as well as stocks on hand. However, no provision was made for financing the crop. Mill owners could not borrow against sugar stocks, since they did not control their sales, and the sales agency had no borrowing power. Moreover, the agency failed to turn the sugar rapidly into cash and, hence, because of public pressure, it was terminated.

A free market was reestablished, and the flood of sugar released by dissolution of the agency forced prices to their lowest point up to that time. Government action was again imminent.

CHADBOURNE PLAN

The passage by the United States of the Hawley-Smoot Tariff in 1930, by raising the duty to 2 cents per pound, threatened to reduce further the United States market for Cuban sugar. Cuba attempted in vain to get insular and United States producers to join in limiting production.

Cuba then passed the Sugar Stabilization Act on November 15, 1930. It segregated 1½ million tons of sugar to be sold outside the United States market over a 5-year period. Financing was by sale of bonds and an 11-cent tax on each bag of sugar. A stabilization institute was set up to enter into international agreements on behalf of sugar producers.

An agreement was reached at Brussels on May 9, 1931, between seven (later nine) exporting countries, representing 40 percent of world production and about 90 percent of sugar entering international trade. This was known as the Chadbourne Plan, named after the New York lawyer who originally promoted the plan. Under the terms of this agreement, the member countries were to limit their exports to specific annual quotas. It was agreed that a portion of the yearly exports from the member countries would be taken from surplus stocks and that the countries would endeavor to adjust production so that it would not exceed domestic consumption plus exports, less the quantity taken from surplus stocks. Surplus stocks were to be eliminated within the 5 years covered by the agreement.

The Chadbourne Plan was adopted at a time when the economic depression was becoming increasingly severe and the trend of world consumption was turning downward for the first time since the World

War. Moreover, no importing countries signed the agreement; barriers against sugar imports increased; and exports of agreement countries fell short of their quota allowances. Nonmember producing countries continued to increase production, and world production after 1932 began a steady upward trend that nullified any price improvement expected under the agreement. While its operation materially reduced surplus stocks in signatory countries, it failed in its ultimate goal, the improvement of the world price of sugar.

LONDON AGREEMENT

The United States market for sugar was stabilized under a quota system after 1934, but in order to stabilize world production and the international marketing of sugar, Cuba entered into an agreement with other producing countries at London on May 6, 1937. Under the terms of this agreement, the major exporting countries agreed for 5 years to limit their exports of sugar to the "free market," a term used to designate that limited international trade in sugar that does not enjoy preferential treatment. The principal importing countries also agreed not to adopt measures that would reduce the free market for sugar.

The 21 countries that became parties to the London Agreement represented almost 90 percent of the world sugar production, in contrast to 40 percent under the Chadbourne Plan. They also included the major importing and self-sufficient countries, and accounted for 85 percent of total world consumption. Hence, certain basic weaknesses of the Chadbourne Plan were remedied in the London Agreement. Prices (London c. and f.) increased from 1 cent a pound in 1936 to 1.59 cents in 1939, though this may be attributable in part to the imminence of war.

Cuba had therefore carried to a successful end its struggle for regulation of the world market and quotas proportional to past shipments. Cuba was assigned 1,036,162 short tons in the initial "free market" quota of 3.6 million tons. At the outbreak of war in September 1939, the policy of stabilization had been assured and Cuba had begun to reap the benefits.

UNITED STATES MARKET AND MEASURES AFFECTING CUBAN SUGAR

United States Government measures have probably had more effect on the Cuban sugar industry than any others, since they directly affect Cuba's principal market. Among these measures may be mentioned (1) changes in United States import-duty rates, (2) United States Government purchase of Cuban sugar crops during the first World War,[35] (3) establishment of the United States quota system for imports and domestic production, and (4) purchase of the 1942 Cuban crop in the second World War.[36]

Ever since 1903, Cuba and the United States have enjoyed a guaranteed reciprocal tariff preferential of 20 percent, but the increases in the general tariff rates on sugar into the United States from time to time have increased the relative advantage of the duty-free domestic and insular sugar as compared with imports from Cuba. (See table 15.) The full-duty rate was doubled through three successive increases from 1.256 cents per pound in 1914–21 to 2.5 cents in 1930–34. Shipments from Hawaii, Puerto Rico, and the Philippines have been duty-free, whereas Cuban sugar until 1934 paid a duty equal to 80 percent of the full rate. At the low prices prevailing during the depression in 1932, the duty on Cuban sugar amounted to more than two times as much as the price of the sugar (New York c. and f.), but during recent years, 1935–40, after the reduction in duty and the establishment of the quota system, the duty has been equivalent to only one-third or one-half the value of the sugar.

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[35] In 1917, the U. S. Sugar Equalization Board was established as an agency of the U. S. Government, for the purpose of purchasing and equalizing the distribution and price of sugar. The Board purchased the entire Cuban crops of 1917–18 and 1918–19 at prices fixed in advance, disposed of the sugar to refiners, and stabilized prices in all phases of the industry. Due to this operation and the subsequent rising prices, a substantial profit accrued to the U. S. Government (7).

[36] In January 1942 the U. S. Defense Supplies Corporation contracted to purchase the entire surplus of Cuba's 1942 crop.

Table 15.—*United States tariff on sugar, 1903–42* [1]

Date and authorization	Duty—cents per pound				Preferential to Cuba
	Raw, 96°		Refined		
	Full rate	*Cuba rate*	*Full rate*	*Cuba rate*	*Percent*
Dec. 27, 1903 (Cuban Reciprocity Treaty of 1902)	1.685	1.348	1.95	1.560	20
Aug. 5, 1909 (Payne Bill)	1.685	1.348	1.90	1.520	20
Mar. 1, 1914 (Underwood Bill, 1913)	1.256	1.0048	1.36	1.008	20
May 27, 1921 (emergency tariff)	2.000	1.60	2.16	1.728	20
Sept. 22, 1922 (Fordney-McCumber Act)	2.206	1.7648	2.39	1.912	20
June 17, 1930 (Hawley-Smoot Act)	2.500	2.00	2.65	2.120	20
June 8, 1934 (Roosevelt proclamation)	1.875	1.50	1.9875	1.590	20
Sept. 3, 1934 (Cuban trade agreement)	1.875	.90	1.9875	.954	52
Sept. 12, 1939 (suspension of quotas)	1.875	1.50	1.9875	1.590	20
Dec. 27, 1939 (supplementary trade agreement)	1.875	.90	1.9875	.954	52
Jan. 5, 1942 (second supplementary trade agreement)	1.875	.75	1.9875	.795	60
July 1942 (trade agreement with Peru)	.938	.75	.994	.795	20

[1] Hawaiian sugar was admitted free under the Treaty of 1875. Puerto Rican sugar also enters duty-free. Until Mar. 1, 1914, 336,000 tons of Philippine Island sugar were admitted duty-free and the rest granted a 25-percent preference. Since March 1914 all sugar from the Philippines has entered free, but subject to quota limitations since the inauguration of the United States sugar quota system in 1934.

U. S. Tariff Commission.

The long trend toward higher tariffs was reversed in June 1934, at about the same time that the sugar quota was established. Under the flexible tariff provisions, the general duty on raw sugar was reduced from 2.5 cents to 1.875 cents a pound (from 2.0 to 1.5 cents for Cuba) by a proclamation of the President following an investigation by the United States Tariff Commission (*18*). In September of the same year, the preferential rate to Cuba was again reduced, this time to 0.9 cent a pound under the terms of the reciprocal trade agreement, thus increasing Cuba's preferential from 20 percent to 52 percent. On January 5, 1942, after the entry of the United States into the war, the duty on sugar from Cuba was reduced to 0.75 cent per pound under the Second Supplementary Trade Agreement, and under a trade agreement with Peru the full duty was reduced to 0.9375 cent, leaving the duty to Cuba unchanged at a 20-percent preference.

Before the inauguration of the quota system, the import duty was the principal factor restricting imports from Cuba, because competition was from the duty-free domestic and insular sugar rather than from other foreign countries. (See table 16 and fig. 16.) But after the inauguration of the quota system in 1934, that became the principal limiting factor rather than the tariff. Neither of the duty reductions in 1934 permitted any material increase in Cuban sugar exports to the United States because they were limited by the quotas. The restricting quotas were suspended for about 3 months in 1939, when the European war led to a sharp speculative rise in prices and, consequently, during this period Cuban sugar became dutiable at the preagreement rates.

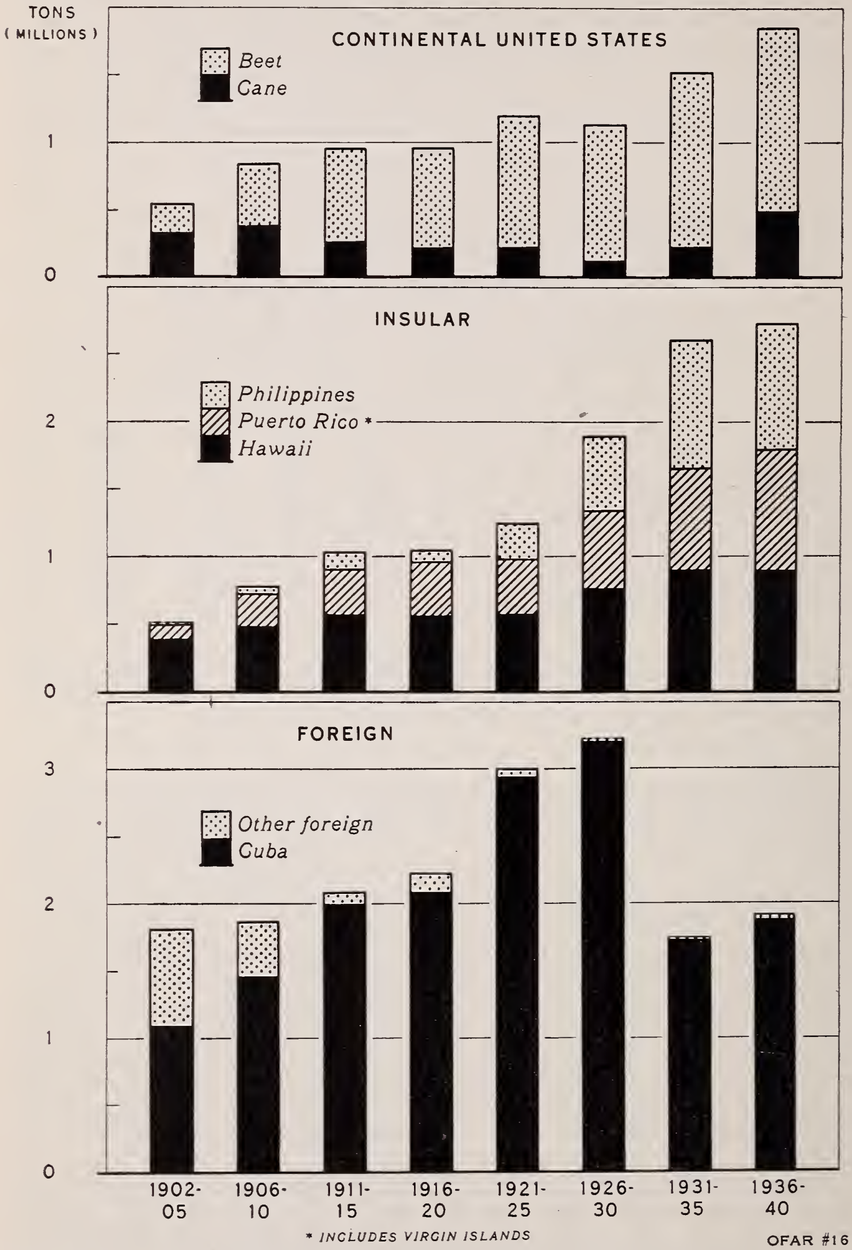

FIGURE 16.—Sugar consumption in the United States, by source of supply, 1902–40.

TABLE 16.—*Percentage distribution of sugar consumption in the United States, by sources (according to amounts charged against quotas) 1907–40*

Period	Foreign		United States			Total consumption
	Cuba	Other	Insular [1]	Continental	Total	
Average:	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1907–11	41.7	9.9	23.9	24.5	48.4	100.0
1912–16	49.7	1.6	25.4	23.3	48.7	100.0
1917–21	48.6	4.0	23.9	23.5	47.4	100.0
1922–26	56.2	1.3	23.0	19.5	42.5	100.0
1927–31	47.0	.4	33.1	19.5	52.6	100.0
1932–36	27.7	.1	45.1	27.1	72.2	100.0
Annual:						
1937	31.7	.7	42.2	25.4	67.6	100.0
1938	29.0	1.2	40.5	29.3	69.8	100.0
1939	24.8	.1	41.3	33.8	75.1	100.0
1940	27.2	.3	42.1	30.4	72.5	100.0
1941 [2]	32.9	2.7	37.9	26.5	64.4	100.0

[1] Including Philippines.
[2] First 10 months only.

U. S. Tariff Commission, Statistics on Sugar, March 1940, p. 27; 1940 data from the Sugar Division, Agricultural Adjustment Administration.

The quota system in the United States was established on June 8, 1934, under the Jones-Costigan Act, which provided for absolute quotas limiting importation and marketing of sugar.[37] It is provided that the Secretary of Agriculture shall determine for each calendar year the amount of sugar needed to meet United States consumption. This amount is allocated among supplying areas according to proportions stated in the act. United States domestic and insular areas were allotted 55.59 percent but no less than 3,467,520 short tons; the Philippines 15.41 percent but no less than the 952,000 short tons established under the Independence Act of 1934; Cuba, 28.60 percent; and other foreign countries, 0.40 percent. If any area is unable to fill its quota, the deficiency may be allotted among the other suppliers, except that any deficiency in the quota for the Philippines must be allotted to foreign countries other than Cuba. Final allocations since 1934 are shown in table 17.

TABLE 17.—*United States sugar quotas (after reallotments), 1934–42* [1]

Area	1934	1935	1936	1937	1938	1939 [2]	1940	1941	1942 [3]
Continental United States:	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*
Beet	1,556	1,550	1,342	1,417	1,584	1,810	1,550	2,230	1,862
Cane	261	260	392	472	429	586	420	445	505
Cuba	1,867	1,823	2,103	2,149	1,954	1,930	1,750	2,887	2,298
Philippines	1,006	982	1,001	998	991	980	982	983	1,238
Hawaii	948	926	1,033	984	922	966	938	994	1,127
Puerto Rico	807	788	909	897	816	1,125	798	1,011	959
Virgin Islands	5	5	4	10	3	6	9	13	11
Other foreign and unallotted reserve	26	25	28	115	81	62	24	440	32
Total	6,476	6,359	6,812	7,042	6,780	7,465	6,471	9,003	8,032

[1] In short tons.
[2] Quotas were suspended on Sept. 11, 1939; total charges against quotas are given.
[3] Initial allocation Dec. 31, 1941.

U. S. Tariff Commission, Statistics on Sugar, March 1940, p. 29; U. S. Department of Agriculture.

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[37] The quota system was renewed for 3 years under the Sugar Act of 1937 and was subsequently extended twice, the last extension being until December 31, 1944. However, due to the war, quota limitations were suspended on April 13, 1942.

In general, the quota system greatly reduced Cuba's share in the United States market—from roughly 50 percent before the depression to only 25 to 32 percent since 1934. (See table 16.) Cuba's quota, however, was slightly greater than the low point just prior to the quota in 1933. The principal advantage to Cuba accrues from the rise in price of quota sugar above the world price of nonquota sugar.

CUBAN SUGAR TAXES

The Cuban Government early recognized the value of the sugar industry as a source of revenue through taxation. Several special taxes are applicable only to the sugar industry, while others have a general application. Special taxes on raw sugar total 28 cents a bag (329.6 pounds) of raw sugar and amount to about $3.50 an acre at average yields. A tax on cane to provide revenue for the colonos' association is at the rate of 1 cent per 100 arrobas (2,535 pounds) of cane and amounts to about 13 cents an acre. The municipal land tax, based on the quantity and value of cane produced, varies from 50 cents to about $1.10 an acre, plus a 15-percent surcharge as a Provincial tax in addition to a Federal tax. Exports of molasses are subject to a tax equal to 2 percent of the value. Refined and turbinated sugar for consumption in Cuba are subject to a consumption tax of 1.5 cents a pound. In addition, the industry is also subject to various other taxes, such as a tax on weighing scales, and taxes on interest, dividends, profits, transfers. The total amount of taxes paid by the sugar industry probably equals from 8 to 10 percent of the gross value of the sugar produced.

Tobacco

Cuba is noted throughout the world for the fine quality of its cigar tobacco, known as Havana. The highly prized aroma of Havana leaf makes it especially desirable for blending with other leaf in the manufacture of cigars, and it is principally for this purpose that Cuban leaf is used in the United States.

Tobacco is Cuba's second most important crop. Of the approximately 51 million pounds average annual production during recent years, from 55 to 60 percent has been exported, about 28 million pounds in the form of leaf and nearly 1 million pounds in the form of cigars. Exports during recent years have been valued at about 14 million dollars annually, or about 10 percent of Cuba's total exports. The United States has been the principal market, taking about 75 percent, by value, of tobacco exports.

PRODUCTION

Since the turn of the century, production has varied widely from about 35 million pounds to 83 million, depending largely upon the demand in the export market. The depressions of 1907, 1921, and 1931 and also the World War of 1914 decreased foreign purchasing power, reduced exports, and made it necessary to reduce production. The long-time trend indicates some decline in production from a level of about 60 million pounds in 1901–14 to an average of about 50 million pounds in 1930–40 (table 18).

TABLE 18.—*Tobacco production and exports, Cuba, 1911–41*

Period	Quantity					Value of exports		
	Production	Exports, unmanufactured [1]	Used by domestic manufacturers			Unmanufactured	Cigars	Total, including other products
			For export cigars	For local consumption	Total			
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Average:								
1911–15	65, 398	36, 310	4, 709	18, 990	23, 699	17, 951	11, 207	29, 538
1916–20	66, 073	31, 916	4, 233	25, 858	30, 091	23, 556	13, 251	37, 718
1921–25	60, 223	31, 473	2, 519	25, 152	27, 671	26, 807	9, 905	37, 139
1926–30	74, 503	46, 639	2, 321	24, 982	27, 303	26, 548	9, 983	36, 985
1931–35	48, 541	33, 065	1, 128	14, 436	15, 564	11, 737	3, 957	15, 873
1936–40	50, 842	26, 716	743	20, 087	20, 830	10, 628	3, 000	15, 706
Annual:								
1931	81, 860	40, 294	1, 485	19, 726	21, 211	16, 635	5, 951	22, 847
1932	35, 189	36, 875	832	11, 564	12, 396	10, 381	2, 366	12, 926
1933	36, 872	29, 926	985	11, 147	12, 132	10, 166	3, 092	13, 396
1934	46, 272	26, 887	1, 253	13, 579	14, 832	9, 899	4, 426	14, 498
1935	42, 512	31, 343	1, 087	16, 164	17, 251	11, 604	3, 948	15, 699
1936	42, 139	23, 053	1, 034	17, 636	18, 670	9, 153	4, 068	13, 331
1937	55, 396	27, 379	830	20, 216	21, 046	11, 211	3, 638	14, 924
1938	55, 319	28, 018	780	20, 452	21, 232	10, 839	3, 127	14, 044
1939	45, 138	28, 764	686	20, 162	20, 848	11, 057	2, 972	14, 094
1940	56, 219	26, 359	383	21, 971	22, 354	10, 880	1, 193	12, 139
1941 [2]	42, 534	29, 507	544	23, 330	23, 873	12, 423	1, 612	14, 117

[1] Actual weight; strips and scrap not converted to unstemmed equivalent.
[2] Preliminary.

1909–28, Association of Tobacco Merchants and Growers; 1929–40, Comisión Nacional de Propaganda y Defensa del Tabaco Habano.

TYPES OF TOBACCO

Five separate types of tobacco from five different growing regions are recognized by the trade. From west to east, the regions are Vuelta Abajo, Semi-Vuelta, Partido, Remedios, and Oriente (fig. 17). Vuelta Abajo and Remedios are by far the most important and most widely known, accounting for fully three-fourths of the total production. The five principal regions are subdivided into districts, in each of which the tobacco has more or less uniform characteristics. It is estimated that Cuba produces about 2 million pounds of shade-grown leaf for cigar wrappers. About three-fourths is grown in the Partido region and one-fourth in Vuelta Abajo.

Vuelta Abajo is grown in the extreme western part of the island and is generally the finest tobacco in the country. The leaf is very aromatic yet mild, has a bright brown color, and is used largely for the manufacture of cigars in Cuba. Quality characteristics vary from farm to farm, thus making it difficult for foreign buyers to obtain large quantities of uniform quality from this region. The region is divided into eight districts, the finest leaf being produced in the San Juan and San Luis district on the lowlands southwest of Pinar del Río. In this district, much of the tobacco is grown under shade and is used for cigar wrappers. To the north, the Vuelta-Abajo region extends into mountainous country. The soils of the region are generally sandy. Production during recent years has averaged about 21 million pounds, accounting for about 40 percent of the country's total production (table 19).

The Semi-Vuelta region adjoins the Vuelta Abajo on the east. Leaf produced in this region has a heavier body and stronger aroma than Vuelta Abajo and is well packed and graded and in demand by United

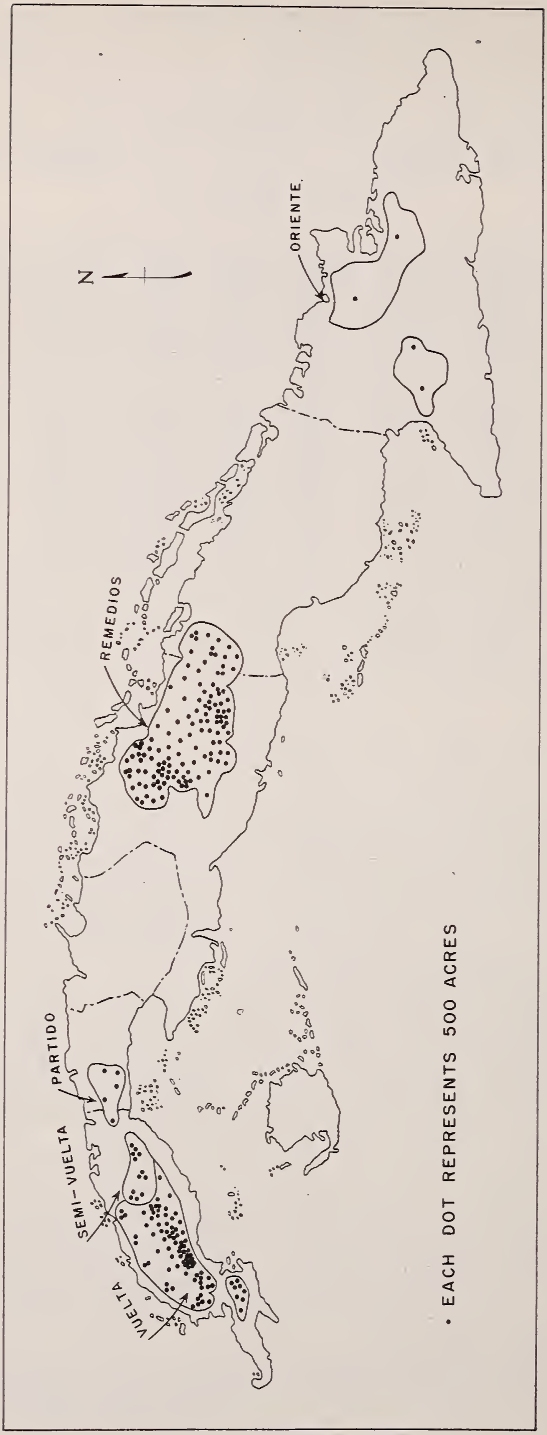

FIGURE 17.—Tobacco acreage, by types, 1940.

States importers for blending with other kinds of leaf in the manufacture of cigars. Production usually varies from 1 to 3 million pounds, representing less than 5 percent of the country's total.

TABLE 19.—*Tobacco acreage and production and number of producing farms in Cuba, by regions, for specified years*

Period	Vuelta Abajo	Semi-Vuelta	Partido	Remedios	Oriente	Total
PRODUCTION						
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Average:						
1911–15	21,216	3,397	6,753	30,053	3,979	65,398
1916–20	19,951	3,460	5,866	35,072	1,723	66,072
1921–25	17,105	2,567	4,387	35 212	958	60,229
1926–30	22.506	3,689	2,560	41,794	3,953	74,502
1931–35	16,116	2,021	1,362	26,201	2,840	48,540
1936–40	20,733	2,353	1,396	24,695	1,665	50,842
Annual:						
1929	23,950	4,902	3,011	33,225	3,572	68,660
1933	13,251	1,264	1,396	18,703	2,260	36,874
1936	19,855	2,607	1,154	16,616	1,907	42,139
1937	19,327	2,229	1,171	30,545	2,123	55,395
1938	22,606	2,468	1,555	27,195	1,495	55,319
1939	19,174	1,804	1,494	21,357	1,307	45,136
1940	22,704	2,658	1,605	27,760	1,492	56,219
1941	19,711	1,101	1,091	19,723	908	42,534
ACREAGE						
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
1929	55,482	11,078	3,141	78,048	2,545	150,294
1933	31,165	3,506	2,281	72,285	3,128	112,365
1936	43,220	6,766	2,429	54,061	2,110	108,586
1937	42,710	6,135	1,824	54,298	1,900	106,867
1938	44,374	6,489	2,380	57,332	1.589	112,164
1939	39,188	4,465	2,184	53,303	1,504	100,644
1940	43,822	5,802	2,212	54,593	1,735	108,164
1941	36,116	3,094	1,682	46,974	1,434	89,300
NUMBER OF FARMS						
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
1929	2,558	708	682	3,281	461	7,690
1933	1,618	463	374	2,697	549	5,701
1936	2,032	596	345	2,202	431	5,606
1937	1,937	517	315	2,201	360	5,330
1938	1,934	510	450	2,104	241	5,239
1939	1,857	410	426	2,000	172	4,865
1940	1,925	464	494	1,951	191	5,025
1941	1,759	352	394	1,784	146	4,435

1909–28, Association of Tabacco Merchants and Growers; 1929–40, Comisión Nacional de Propaganda y Defensa del Tabaco Habano.

The Partido region lies southwest of Habana. This leaf is generally mild, but does not possess as fine an aroma as Vuelta Abajo. The rich red soil of this region produces a large, light, slate- or sand-colored leaf of fine texture extensively used for wrappers on clear Habana cigars manufactured for the English export market. Most of the leaf, especially that for wrappers, is grown under the shade of cloth. Production of Partido has declined sharply from a level of about 7 million pounds before the World War to only about 1.5 million pounds, or 3 percent of the total, during recent years. Important reasons for this decline are the drop in exports of Cuban cigars and the increased competition for the use of the land for producing winter vegetables for export.

The Remedios region is particularly important for exports to the

United States. This region lies in the center of Cuba, mostly in Las Villas Province. Remedios tobacco has a heavy, gummy texture, is very aromatic and suitable for blending as filler with other cigar leaf. The aroma is not as delicate as that of Vuelta, but because of its stronger aroma and its other characteristics, particularly the uniformity from farm to farm, this type is well adapted for use in the United States, to which the greater part of this crop is exported. Production averages about 25 million pounds, or nearly 50 percent of the country's total production.

The Oriente region consists of two widely separated districts in the Province of Oriente at the eastern end of the island. This leaf is generally of inferior quality, with coarse texture and strong aroma, and is not carefully packed. It is used primarily in cheaper grades of domestic cigarettes. Production averages about 1.7 million pounds, or about 3 percent of the country's total.

FARM ORGANIZATION

Tobacco for sale was grown on 5,025 farms in 1940, as compared with an average of 6,459 farms during 1929–35. The tobacco area per farm averages about 21 acres for the country as a whole, but varies widely with the different regions. In the Remedios region, production is on a relatively large scale, with an average of about 26 acres per farm, as compared with 21 acres in the Vuelta Abajo region and only 4 to 6 acres in the Partido region.

Most growers operate their own farms in the Vuelta region, whereas in Remedios absentee ownership and operation by share tenants is the most common practice. The landlord sometimes furnishes the land and half of everything else, including labor, and receives half the crop; in other cases, the landlord furnishes only the land and equipment, such as barns, poles, and cloth, and receives one-fourth the crop. Tenants and small growers are financed by country storekeepers and to some extent by leaf dealers. Baling, fermenting, and packing are usually not done by growers but by the dealers themselves. Sometimes tobacco manufacturers operate their own plantations with hired labor.

PRODUCTION PRACTICES

Seedbeds are usually started at various intervals during August and September so as to supply plants throughout the season for transplanting, which begins during the latter part of October and in normal years is completed in November. About 15,000 plants per acre are set in the Vuelta Abajo region, and about 10,000 per acre in the Remedios region. Commercial fertilizers are used in the Vuelta and Partido regions, where the soil is generally light and sandy and the higher price for these types makes it profitable to apply commercial fertilizer. They are not used in the other three regions, which have heavier soil and lower-priced leaf. Irrigation is used only in the Vuelta Abajo and Partido regions and chiefly on shade-grown tobacco. During the growing season, the fields are cultivated by hand. Tobacco is usually ready for harvest from December to February, about 55 days after the plants have been set out in the fields.

Yields vary between regions; the Vuelta Abajo and Remedios average from 400 to 500 pounds an acre as compared with about 700 pounds an acre for Partido and 900 pounds for Oriente. Shade-grown tobacco is harvested by taking one leaf at a time from the bottom of the plant as it ripens. Most of the other tobacco is harvested from the top down by cutting off sections of the stalk each with two leaves or by cutting the entire stalk. (See fig. 18.) The leaves harvested by either method are then hung to dry in curing barns or sheds for 30 to 90 days, when after a few days of rainy weather they are taken down and tied into bundles of 3 to 5 pounds each (shade-grown tobacco leaves are counted) and placed in packing houses for the process of fermentation, which usually requires about 40 days. After fermentation, the leaves are sorted and graded according to size and quality. In some sections of the Vuelta region, as many as 17 or 18 groups are established.

The fermented leaves are tied into hands, which are combined into larger packages and then packed in bales, the weight of which varies from 80 to 170 pounds according to the region.[38] After the tobacco is baled, it is delivered to the markets, principally Habana, where it is placed in warehouses for an additional fermentation and aging until required by manufacturers. During storage, the bales lose approximately 5 percent of their weight. The actual sale of the crop usually takes place on the farm before fermentation and packing, but some farmers complete this operation and sell when the bales are delivered to the warehouse.

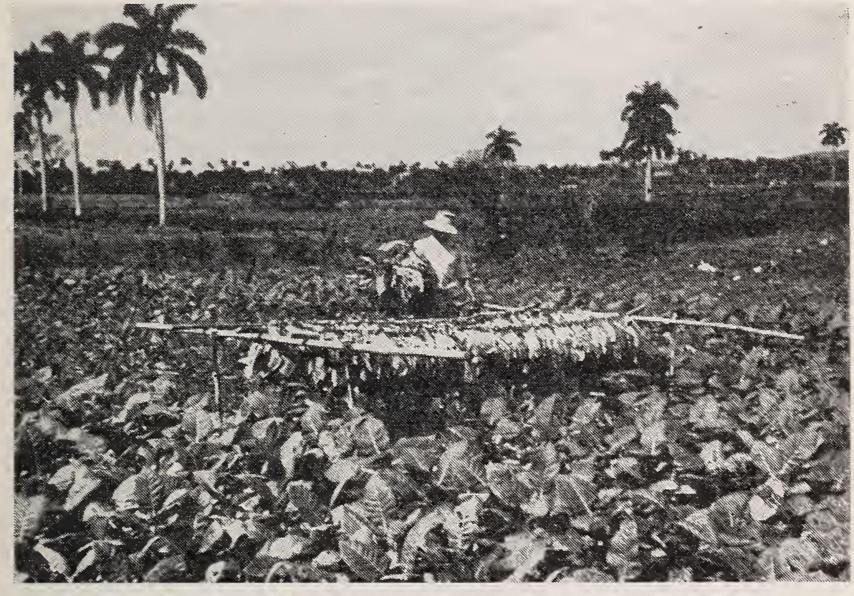

FIGURE 18.—Harvesting Remedios tobacco in Cuba. Leaves are hung on racks in the field for a day.

DOMESTIC CONSUMPTION

Only about one-third of Cuba's tobacco production is normally used in the manufacture of products consumed locally. Of recent crops, averaging roughly 51 million pounds, some 20 million were consumed in the country, whereas about 31 million pounds of leaf (unstemmed equivalent) were exported. Since 1936, less than 1 million pounds in leaf annually have been used in the manufacture of cigars for export.

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[38] Bales of Oriente tobacco weigh about 170 pounds; Remedios, 150; Semi-Vuelta, 125; Vuelta Abajo, 80 to 110; and Partido, 80 pounds.

In spite of the country's important production of fine tobaccos, the per capita consumption of commercially manufactured products is relatively low. That of cigars is about the same as in the United States, but cigarette consumption is slightly less, and there is practically no consumption of such other products as pipe tobacco, chewing tobacco, and snuff. It is estimated that the total leaf consumption in manufactured products amounts to 4.5 pounds per capita, or less than two-thirds as much as in the United States. However, some leaf is used by producers and their families without entering commercial manufacture or being taxed and, therefore, without being reported in the official consumption data. Table 20 shows the estimated weight of the leaf used in the manufacture of various tobacco products. It will be noted that cigarettes are by far the most important product, accounting for about 84 percent of the total consumption, as compared with only about 15 percent for cigars and less than 1 percent for smoking tobacco.

TABLE 20.—*Estimated weight of Cuban tobacco used in the manufacture of various products, average 1937–40*

Product	Manufactured	Consumed	Exported
	Million pounds	*Million pounds*	*Million pounds*
Cigars	3.85	3.15	0.70
Cigarettes	17.40	17.32	.08
Smoking tobacco	.15	.13	.02
Total	21.40	20.60	.80

Domestic consumption was severely affected in the depression period as a result of sharply reduced consumer purchasing power (see table 21) and has never fully regained the high level of 1915 to 1930. The consumption of cigars declined much more severely than that of cigarettes.

TABLE 21.—*Cigars, cigarettes, and smoking tobacco production, consumption, and exports, Cuba, 1906–41*

Period	Cigars			Cigarettes			Smoking tobacco		
	Production	Consumption	Exports	Production	Consumption[1]	Exports	Production	Consumption	Exports
	Million pieces	*Million pieces*	*Million pieces*	*Million pieces*	*Million pieces*	*Million pieces*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Average:									
1906–10	362	167	195	3,610	3,395	215	688	286	402
1911–15	361	202	159	4,346	4,109	237	960	308	652
1916–20	480	341	139	5,373	5,213	160	1,296	439	857
1921–25	375	289	86	5,421	5,322	99	830	402	428
1926–30	302	215	87	5,776	5,706	70	681	369	312
1931–35	111	69	42	3,648	3,613	35	379	222	157
1936–40	168	138	30	4,875	4,850	25	166	131	35
Annual:									
1936	140	98	42	4,379	4,354	25	288	194	94
1937	161	126	35	4,964	4,940	24	160	125	35
1938	157	125	32	5,044	5,013	31	141	121	20
1939	154	125	29	4,959	4,936	23	121	105	16
1940	230	216	14	5,030	5,005	25	122	112	10
1941	266	246	20	5,187	5,157	30	141	124	17

[1] In addition to the small quantity imported; see table 22.

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A distinct tendency in consumption, favoring blended cigarettes from the United States, has been noted. During the past 6 years the imports of such cigarettes have increased to nearly eight times the quantities imported in 1934 and in 1941 amounted to 67 million pieces. (See table 22.) However, the consumption of United States cigarettes in Cuba is still relatively very small and represents little more than 1 percent of the total.

Table 22.—*Consumption in Cuba of domestic cigarettes and cigarettes imported from the United States, 1934–40*

Origin	1934	1935	1936	1937	1938	1939	1940
	Millions	*Millions*	*Millions*	*Millions*	*Millions*	*Millions*	*Millions*
Cuba	3,139.4	3,749.5	4,354.3	4,939.6	5,012.5	4,935.6	5,004.9
United States	7.7	37.8	45.1	56.7	52.8	59.8	61.6

Comisión Nacional de Propaganda y Defensa del Tabaco Habano.

EXPORTS

Nearly two-thirds of Cuba's tobacco crop is normally exported (figs. 19 and 20), mostly in the form of unmanufactured tobacco, although exports of cigars, because of their higher unit value, have constituted an important part, 10 to 30 percent, of the total value of all tobacco exports. Exports of unmanufactured tobacco since 1910 have varied from 23 to 58 million pounds, with a value of from 9 to 30 million dollars annually. Exports of cigars have tended to decline almost steadily from 256 million pieces in 1906 to only 14 million in 1940. Similarly, the value of cigar exports declined from nearly 20 million dollars in 1906 to 1.2 million in 1940. Exports of cigarettes and smoking tobacco are relatively unimportant, never having reached a combined total value of a million dollars, and during recent years have amounted to less than 100,000 dollars annually.

Exports of unmanufactured tobacco remained fairly consistent at an average of about 35 million pounds annually from 1900 until 1916, when the level was reduced somewhat as a result of the World War, but again increased to a record level of about 47 million pounds annually from 1926 to 1930. During the depression period in the 1930's, with a general decline in world cigar consumption, exports of unmanufactured tobacco from Cuba again declined to an average of only about 27 million pounds during 1931–40.

Nearly all the exports of unmanufactured tobacco are cigar filler. Roughly 60 percent during recent years until 1940 consisted of whole leaf and 40 percent of strips and trimmings, that is, leaf from which the stems and midribs have been removed. Cigar-wrapper leaf accounted for only a small part of the exports and amounted to one-fourth to one-half million pounds annually. (See table 23.)

The United States has long been the best export market, taking about 60 percent of the value of all tobacco exports, including cigars. In 1940 and 1941 the United States took three-fourths of the total exports. The United States, however, is primarily a market for unmanufactured tobacco of the better grades for use in blending with domestic leaf in making cigars. About one-half of the quantity and three-fourths of the total value of Cuba's exports of unmanufactured tobacco have been to the United States, the high value being due to

TABLE 23.—*Unmanufactured tobacco exports from Cuba, by countries of destination, 1929–41*

Country of destination	1929	1933	1934	1935	1936	1937	1938	1939	1940	1941
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	24, 279	13, 174	12, 990	15, 825	11, 595	13, 791	13, 141	14, 953	15, 159	19, 175
Canada	1, 173	338	72	289	239	346	467	215	383	303
Argentina	4, 486	1, 107	1, 228	1, 229	777	994	1, 270	946	560	815
Puerto Rico	492	191	189	476	446	497	108	2	2	1
Uruguay	547	191	232	250	426	136	321	335	377	270
Chile	560	29	24	60	109	90	206	336	312	351
Other Latin America	79	-------	-------	-------	-------	-------	-------	-------	-------	260
Total Latin America	6, 164	[1] 1, 518	[1] 1, 673	[1] 2, 015	[1] 1, 758	[1] 1, 717	[1] 1, 905	[1] 1, 619	[1] 1, 251	21, 175
Spain	9, 361	9, 283	8, 643	6, 627	3, 510	2, 974	6, 606	6, 449	7, 172	6, 193
Netherlands	2, 873	1, 852	468	551	558	1, 244	898	2, 211	683	0
Germany	1, 265	1, 612	249	3, 960	3, 231	4, 956	3, 575	1, 862	-------	0
Belgium	273	206	400	101	416	140	132	144	13	0
Gibraltar	84	286	200	277	182	22	21	24	60	14
France	231	154	140	176	125	52	24	-------	37	0
United Kingdom	82	42	124	107	82	87	64	84	2	0
Sweden	412	308	587	542	677	1, 076	282	357	336	454
Other Europe	245	-------	-------	-------	-------	-------	-------	-------	-------	677
Total Europe	14, 826	[1] 13, 743	[1] 10, 811	[1] 12, 341	[1] 8, 781	[1] 10, 551	[1] 11, 602	[1] 11, 131	[1] 8, 303	7, 338
Canary Islands	185	550	941	600	207	274	254	198	599	368
Other countries	75	603	400	273	473	700	659	648	664	626
Total exports	46, 702	29, 926	26, 887	31, 343	23, 053	27, 379	28, 028	28, 764	26, 359	29, 507

[1] Includes only countries listed.

Com. Exterior, Cuba, Min. de Hacienda, Dir. Gen. de Estadís

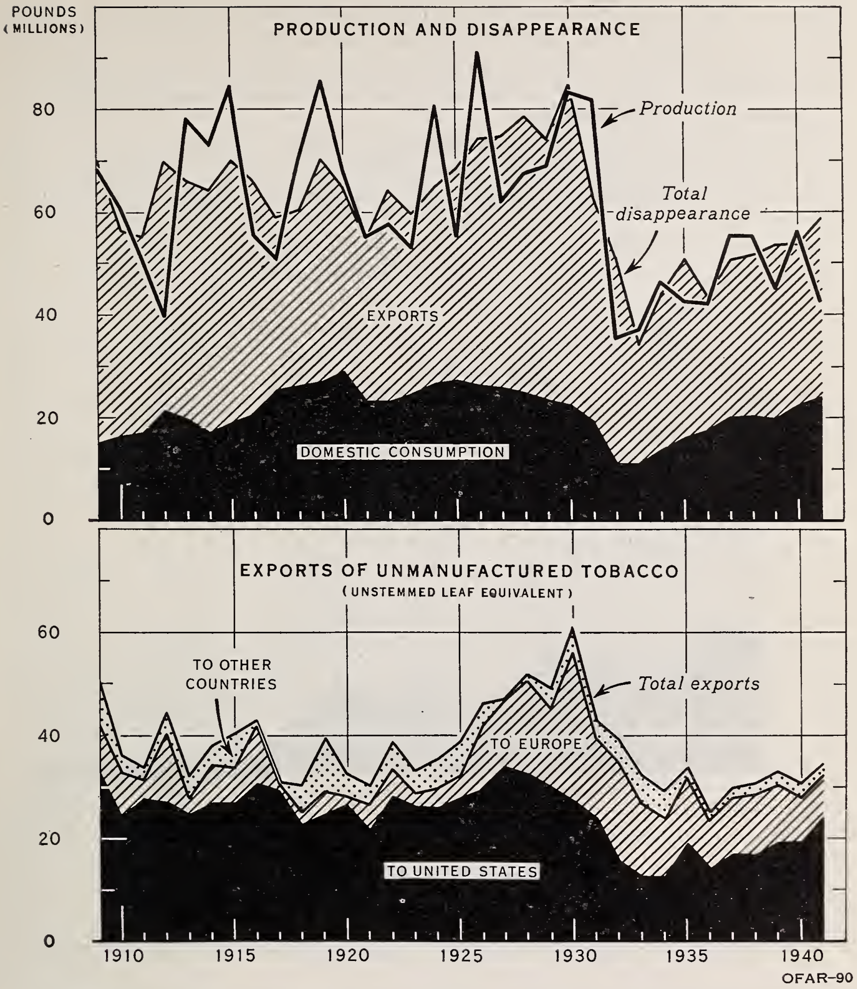

FIGURE 19.—Tobacco production, consumption, and exports, Cuba, 1909–41.

the preponderance of the higher-priced grades and the large proportion of strips. During the 5 years 1936–40, the average value of exports to the United States was 58 cents a pound, whereas that to other countries, largely Spain, averaged only 20 cents a pound. Exports to the United States during recent years have consisted of only about 16 to 28 percent whole leaf (including a little wrapper), 50 to 64 percent strips, and 20 to 22 percent trimmings. The following shows the average quantities of each kind of unmanufactured tobacco exported to the United States in 1936–40:

	1,000 pounds
Wrapper	530
Filler—unstemmed	2, 346
Filler—stemmed	7, 901
Scrap	2, 951
Total	13, 728

Of the total exports of wrapper, strips, and scrap, the United States takes between 95 and 98 percent, but takes only 10 to 20 percent of the unstripped leaf. Over a period of years Cuban tobacco accounts for from 15 to 19 percent of all the tobacco used in the manufacture of cigars in the United States.

Table 24 shows the relative importance of the various countries as export markets for unmanufactured tobacco during 1936–40. It should be noted that the United States share is actually more important than these data indicate, because of the higher value of its imports.

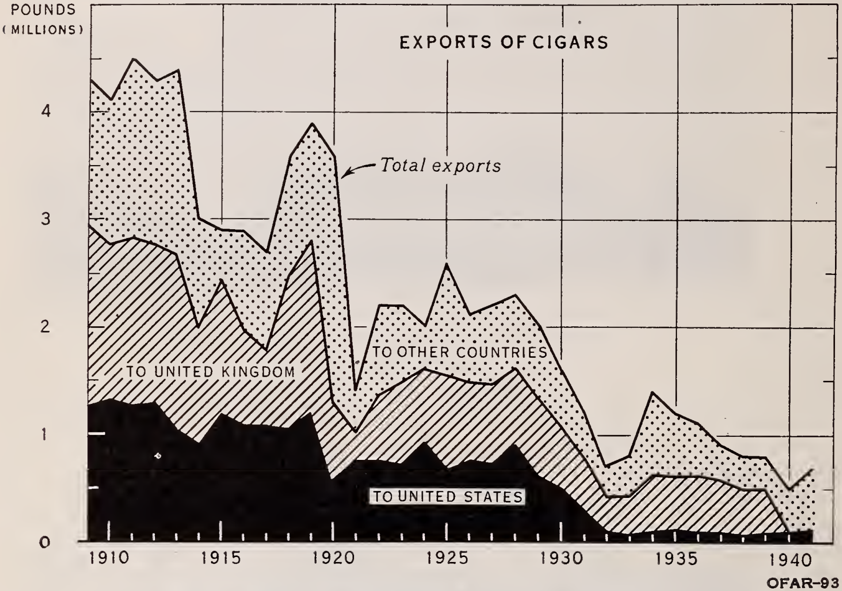

Figure 20.—Cigar exports from Cuba, 1910–41.

Table 24.—*Tobacco exports from Cuba, by country of destination, average 1936–40*

Country	Quantity	Proportion
	Million pounds	*Percent*
United States	13.7	51.3
Europe:		
Spain	5.3	19.9
Germany	2.8	10.5
Netherlands	1.1	4.1
Sweden	0.6	2.2
Other countries	0.5	1.9
Total Europe	10.3	38.6
Latin America	1.7	6.4
Other countries	1.0	3.7
Total	26.7	100.0

Next to the United States in importance is the European market, which during recent years prior to 1940 took about 40 percent of Cuba's exports of unmanufactured tobacco. Spain has been by far the most important, taking between 6 and 9 million pounds of leaf, or from one-fourth to one-fifth of Cuba's total exports, except during 1936 and 1937, when the war in Spain reduced the quantity to about 3 million pounds. Latin American countries took only 6 to 7 percent.

Cigars during recent years (prior to 1940) accounted for about one-fourth of the total value of tobacco exports. Prior to 1929, the United States and the United Kingdom were of about equal importance as markets for Cuban cigars, each taking nearly one-third of the total exports; Spain and France were next in importance. But from 1929 to 1932, cigar exports to the United States fell off rapidly to only about one-tenth of the former level, leaving the United Kingdom as the principal market, taking one-half to two-thirds of Cuba's cigar exports. The Spanish Civil War severely reduced shipments to that country, and the European War has cut off the markets in most of the other European countries. This industry has suffered especially since the United Kingdom early in 1940 prohibited further purchases of cigars from Cuba. Thus most of the export market for cigars, which prior to 1930 amounted to 10 to 15 million dollars annually, has now been lost, with exports in 1940 and 1941 amounting to only 1.2 and 1.6 million dollars, respectively.

PRICES

Cuban tobacco is relatively high priced, particularly the grades suitable for use in the manufacture of good cigars. Because of the high prices, plus the import duty, it is used in the United States principally for blending with domestic leaf in order to impart the desirable Havana aroma to domestic cigars. The average export value of all Cuban tobacco over a long period of years has varied from about 30 cents to nearly $1.00 a pound. However, this includes some high-priced wrapper leaf and a large proportion of strips, for which prices are materially higher than for regular filler leaf. During the 5 years 1936–40, the average export value of wrapper leaf was $1.70 a pound; filler leaf, 23.6 cents a pound; strips, 67 cents; and scrap or trimmings, 28 cents. (See table 25.)

TABLE 25.—*Tobacco export prices, 1921–41*

Period	Unmanufactured, per 100 pounds					Manufactured		
	Unstemmed		Stemmed		Total unmanufactured	Cigars, per 1,000	Cigarettes, per 1,000	Smoking tobacco, per 100 pounds
	Wrapper	Filler	Strips	Scrap				
Average:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1921–25	(1)	(1)	101.01	(1)	85.78	113.97	2.64	52.70
1926–30	(1)	(1)	82.43	[2] 28.06	58.02	110.29	2.79	52.91
1931–35	195.87	21.55	70.52	24.51	35.45	92.14	2.40	50.24
1936–40	170.48	23.60	67.10	27.84	39.80	96.14	2.38	54.35
Annual:								
1931	(1)	(1)	73.18	24.88	41.28	109.01	2.62	52.05
1932	(1)	(1)	71.32	22.46	28.15	82.80	2.50	48.78
1933	202.58	18.36	72.51	22.08	33.97	82.58	2.40	50.80
1934	195.90	22.92	67.97	25.96	36.82	89.88	2.29	49.09
1935	189.04	23.39	67.63	27.19	37.02	96.44	2.21	50.50
1936	171.29	24.89	69.06	28.29	37.90	96.73	2.52	49.26
1937	181.20	23.82	71.07	28.20	40.94	102.21	2.41	52.16
1938	181.49	23.02	67.96	28.02	39.25	97.05	2.20	54.41
1939	154.32	22.27	64.01	27.26	38.98	100.74	2.40	56.48
1940	164.11	23.94	63.37	27.41	41.86	83.96	2.36	59.42
1941	193.29	23.21	59.81	25.86	42.70	79.80	2.36	57.92

[1] Not reported separately.
[2] 3-year average, 1928–30.

Com. Exterior, Cuba Min. de Hacienda, Dir. Gen. de Estadís.

The actual return to growers is not nearly so high as these export prices might indicate. In the first place, about four-fifths of all the leaf used by manufacturers in Cuba is relatively cheap leaf for cigarettes, with an average price (fermented and baled) of only about 10 cents per pound. Including this leaf, the average price of all baled leaf in 1939 is estimated at about 26 cents per pound.

Secondly, these quoted prices are for fermented and baled leaf in storage warehouses. From the quoted prices of baled leaf must be deducted the cost of baling, freight, warehousing costs, and commissions, aggregating an estimated 11 cents per pound. After these charges are deducted, it is estimated that growers received an average of only about 15 cents per pound in 1939. Growers' prices for Vuelta, particularly the better grades, were much higher, while those for Remedios were considerably lower.

Cuban cigars are high-priced; the average wholesale export value in 1939 was 10 cents each. Cigars exported to the United States averaged 11 cents each and those to the United Kingdom 10 cents, while those to Spain, which are of lower quality, averaged around 6 cents each. These high prices for export cigars are explained primarily by the large amount of hand labor involved in their manufacture. Cigars are made, sorted, banded, labeled, and boxed entirely by hand, and for these operations fixed minimum wages are prescribed.

In the United States market, Cuban cigars do not compete directly with cigars made from domestic tobacco because of the wide difference in price. To the Cuban wholesale price of about 11 cents must be added shipping charges, import duties, excise taxes, and merchandising charges, bringing the average retail price of Cuban cigars in the United States to well above 20 cents each,[39] as compared with an average retail price of only 4.6 cents for all cigars sold in the United States.

Products for the domestic trade in Cuba are relatively cheap. Most of the domestic cigars retail at less than 5 cents each, and most of the cigarettes retail at 5 cents per package of 16, equivalent to 6.25 cents for 20, as compared with about 15 cents for the United States.

GOVERNMENT MEASURES AND TRADE AGREEMENTS

Taxation on tobacco products consumed in Cuba is relatively low. Cigarettes are subject to an excise stamp tax of three-fourth cent per package of 16 cigarettes, equivalent to less than 1 cent per package of 20, as compared with the 6½ cents Federal stamp tax in the United States. The low tax and the low price of leaf used in the manufacture of cigarettes permit low retail prices and have undoubtedly helped to maintain the sizable cigarette consumption, even with low consumer purchasing power. Domestic cigars, retailing at less than 2.5 cents each, are taxed $2 a thousand, and those retailing at more than 2.5 cents are taxed $3.

The Tobacco Defense Commission (Comisión Nacional de Propaganda y Defensa del Tabaco Habano) is a semigovernmental organization founded about 12 years ago for the purpose of improving production and marketing of Cuban tobacco, especially in the export field. It is financed from a part of the excise tax collected on tobacco products. This organization also maintains a field laboratory and experiment station for the selection of improved varieties, development of improved curing methods, and production of tobacco seed to supply growers of Vuelta.

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[39] Fully 80 percent of all Cuban cigars sold in the United States retail at more than 20 cents each.

Trade agreements involving tobacco have been negotiated with several countries constituting the important export markets, including the United States, Spain, France, Italy, and Argentina. A treaty with Italy in force many years and the treaty with France have been of little value for tobacco exports, since the quantity shipped to these countries has never been large. A treaty with Spain in 1928 has been more important, partly because of that country's taste for Cuban tobacco. However, during the years of the Spanish Civil War, much of the beneficial effect of that treaty was lost.

By far the most important agreements are those with the United States. In the agreement effective September 3, 1934, Cuban filler leaf (unstemmed) and scrap were given a preferential rate equal to 17.5 cents a pound, whereas the full duty from other countries remained at 35 cents. Similarly the duty on stemmed filler from Cuba was reduced to 25 cents, as compared with the full rate of 50 cents. The duty on wrapper (including filler containing more than 35 percent wrapper) was $1.50 a pound. At the same time, it was provided that total imports from Cuba (unstemmed equivalent) were subject to a quota equal to 18 percent of the quantity of all tobacco used in the manufacture of cigars in the United States during the preceding calendar year. Stemmed tobacco and scraps are converted to an unstemmed equivalent for this purpose by multiplying by 1.33. An additional stipulation provided that if the Agricultural Adjustment Administration program on cigar tobacco in the United States were abandoned, the special preferential duties on Cuban tobacco would become inoperative.

When the adjustment program became inoperative early in 1936, the duties on Cuban leaf were raised on March 16, 1936, to the former level. During the year 1935, in which the lower rates had been applicable to Cuban tobacco, Cuban exports to the United States rose from about 13 million pounds to 15.8 million, but after the restoration of the full duty declined again to 11.6 million in 1936 and during the next 3 years varied from 13.1 to 14.9 million.

Effective December 23, 1939, a supplementary trade agreement was entered into between Cuba and the United States under which the previously existing preferential rates were again established on filler tobacco and the duty on wrapper was reduced to $1.20 a pound. This supplementary agreement also provided a tariff quota for imports beyond which the reduced rates would not be applicable; namely, 22 million pounds (unstemmed equivalent), exclusive of wrapper, in any calendar year. Under this agreement, Cuban exports to the United States rose from 14.9 in 1939 to 15.2 million in 1940 and 19.2 million in 1941. From 1936 through 1940 shipments to the United States were always less than the tariff quota.

Under a second supplementary agreement the duties on Cuban tobacco were further reduced on January 5, 1942, to 91 cents per pound on wrapper, 20 cents on stemmed filler, and 14 cents on unstemmed filler and scrap. The tariff quota to which these rates are applicable, however, remained 22 million pounds (unstemmed equivalent).

So long as the war in Europe continues, the Cuban tobacco industry will suffer through having a large part of its export market cut off.

The blockade, shipping difficulties, and economic policies shut off exports to practically all continental Europe except Spain and Portugal. In addition, the United Kingdom's prohibition on the further importation of Cuban cigars cuts off the principal export market for manufactured tobacco.

Exports of unmanufactured tobacco to Europe, exclusive of Spain, during 1935–39 averaged 5.6 million pounds annually, or about one-fifth of Cuba's total exports in unmanufactured tobacco. In addition, Europe took about two-thirds of Cuba's exports of cigars, for which possibly 0.8 million pounds of leaf were required. The 6.4 million pounds of leaf for which the market has thus been lost is equivalent to about one-eighth of Cuba's total crop. In terms of value, it amounts to about 2 million dollars' worth of leaf, plus about 2.5 million dollars' worth of cigars, or a total of 4.5 million out of the former total export value of 14.6 million.

It is problematical to what extent these export outlets may be regained after the close of the war. It may be significant, however, that in numerous countries the consumption of cigars has tended to decline over a period of years; and it does not appear probable that the world demand for cigar leaf will be greatly increased. An additional adverse factor is the tendency toward the use of cheaper products, whereas Cuban leaf is relatively high priced and Cuban cigars frequently retail at several times the price charged for domestic cigars in the United States. However, the high quality and fine aroma of Cuban tobacco and the inability to obtain similar leaf from any other country assure a consumer preference for Cuban tobacco among most cigar smokers.

OTHER EXPORT CROPS

Fruit ranks third in importance in Cuban agricultural exports, after sugar and tobacco. Exports in the past decade have averaged more than 3 million dollars in value annually, and nearly all, from 92 to 98 percent, were shipped to the United States. Bananas are the most important and comprise about one-half of the total fruit exports. Cuba supplies about 9 percent of the total United States requirements. Pineapples are second in importance and comprise more than one-third of the total fruit exports. Other exported fruits include avocados, grapefruit, guava products, plantains, limes, and papayas (table 26).

Some Cuban fruits are grown largely for the export market, while others are grown solely for local consumption. Many kinds of tropical fruit are not exported at all, usually because they are too perishable. Among these are the zapote, mamey, caimito, anón, tamarind, guanábana, cherimoya, and breadfruit. Mangoes and some of the other fruits are not permitted entry into the United States because of the quarantine to prevent introduction of the fruit fly. Coconuts, although not strictly a fruit, should be mentioned among the important items of domestic consumption.

Even though Cuba is a heavy grower and exporter of fruit, it nevertheless imports some kinds, such as apples, pears, plums, and grapes, from the United States to the value of over $800,000 annually, including fresh, dried, and canned.

Table 26.—*Fruit exports from Cuba, 1926–40*

QUANTITY

Kind	Average 1926–30	Average 1931–35	1936	1937	1938	1939	1940
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Bananas	156, 025	175, 003	295, 090	375, 618	176, 480	216, 844	193, 681
Pineapples:							
Fresh	106, 385	70, 527	82, 730	103, 281	96, 318	94, 874	82, 051
Canned and juice	[1] 2, 692	2, 334	1, 206	7, 162	9, 480	12, 650	14, 751
Grapefruit	13, 585	15, 696	17, 175	12, 157	10, 811	6, 612	12, 070
Avocados	6, 385	6, 546	9, 224	11, 088	9, 883	8, 188	12, 392
Guava products	[2] 2, 445	2, 012	2, 045	1, 636	1, 260	1, 134	1, 534
Plantains	(3)	[4] 1, 031	1, 540	1, 273	1, 014	945	2, 006
Papayas	(3)	(3)	125	31	98	473	1, 470
Limes	16	38	253	282	92	105	210
Other fruits	30, 801	19, 330	656	612	335	772	2, 253
Total	318, 334	292, 517	410, 044	513, 140	305, 771	342, 597	322, 418

VALUE

Kind	Average 1926–30	Average 1931–35	1936	1937	1938	1939	1940
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Bananas	1, 372	1, 266	2, 159	3, 352	1, 389	1, 939	1, 431
Pineapples:							
Fresh	1, 362	861	642	913	850	808	731
Canned and juice	260	118	63	349	526	527	573
Grapefruit	374	198	202	150	89	76	306
Avocados	213	101	103	140	120	80	122
Guava products	149	78	78	80	63	59	73
Plantains	(3)	[4] 11	10	7	7	7	17
Papayas	(3)	(3)	1	1	3	9	21
Limes	1	1	4	5	2	3	4
Other fruits	425	167	8	11	21	28	79
Total	4, 156	2, 801	3, 270	5, 008	3, 070	3, 536	3, 357
To United States	3, 924	2, 623	3, 095	4, 929	2, 801	3, 368	3, 290

[1] 1928–30.
[2] 1926–27.
[3] Not separately classified; included in other fruits.
[4] 1931–33.

Com. Exterior, Cuba Min. de Hacienda, Dir. Gen. de Estadís.

Fruits for local consumption are grown in all parts of Cuba, but those grown principally for export are concentrated in areas having the best soils and transportation facilities. Bananas for export are grown only in the Province of Oriente near Baracoa, around Nipe Bay, Tánamo, Sama, and Guantánamo. Grapefruit for export is grown almost exclusively in the Isle of Pines. The chief pineapple-growing areas are located from 30 to 60 miles southwest of Habana. Papayas are grown in most parts of the island, principally in La Habana, Oriente, and Camagüey Provinces. Although avocados are grown in all Provinces, they are packed for export only within a radius of 30 to 60 miles from Habana.

Table 27 shows the acreage and number of trees or plants of each kind of fruit as reported in the Agricultural Census of 1929, which does not include grapefruit or papayas. More recent censuses have been made only for pineapples and papayas, and these indicate a much greater production—from 13,000 to 15,000 acres of pineapples in 1939 and 1940, and an estimated 2,000 acres of papayas in commercial plantings.

TABLE 27.—*Number of fruit trees or plants and acreage, 1929*

Kind	Acreage	Number of trees or plants	Kind	Acreage	Number of trees or plants
	Acres	*Thousands*		*Acres*	*Thousands*
Bananas	278, 452	6, 823	Pineapples	1, 702	16, 689
Mangoes	14, 200	1, 136	Anôns	1, 283	314
Oranges	10, 730	1, 682	Caimitos	1, 180	74
Avocados	8, 472	518	Guanábanas	1, 170	154
Coconuts	8, 220	658			
Zapote nísperos	3. 593	220	Total [1]	330, 727	----------
Mamey zapotes	1, 725	106			

[1] Does not include grapefruit or papaya. The acreage in bananas appears to be too high compared with the number of plants.

Estadís. Agro-Pecuaria, Cuba Sec. de Agr. Com. y Trabajo.

Most of the fruit, both for the local market and for export, is grown on small farms. The principal exception is pineapples, most of which are produced by large-scale growers. On the small farms additional labor is usually hired during the harvest seasons for picking and hauling to the packing houses. Fruit growers are customarily financed by commission houses or sales agents who contract to purchase the crop. Because of low export prices and unprofitable operations in some recent years, financing firms have reduced the size of their advances, but they have been partly replaced by local merchants.

With the exception of bananas, practically all fruits packed for export are shipped through the port of Habana.[40] Shipments to the port are made both by truck and railroad, and most packing houses have been built along the highways and railways to facilitate shipping. Precooling is available at the docks for part of the produce. From Habana shipments are made by refrigerated steamer to New York and New Orleans and by seatrain to Florida ports and New Orleans. The chief markets for Cuban fruit are New York, Chicago, New Orleans, and St. Louis. Fruit is sold both at auction and at private sale by commission firms. In the past some grapefruit was shipped to European markets, chiefly England.

BANANAS

There are more than 20 varieties of bananas grown in Cuba, but these fall into two major groups: The common banana eaten fresh—the principal varieties of which are the Gros Michel or Johnson, Guineo, Manzano, Indio, Seda, and Dátil—and the large cooking banana, or plantain—of which the principal varieties are Macho, Hembra, and Burro. The plants of both groups look very much alike. Fresh-fruit bananas may again be divided into two groups. Those grown for domestic consumption are quite small and short, principally of the Manzano variety, while those grown solely for export are the larger size commonly known in the United States. These latter export varieties, of which Johnson is the most common, are much better adapted for shipment.

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[40] The Law of December 10, 1936, provides for the registration and licensing of all packers and exporters of fruits; authorizes the Ministry of Agriculture to determine the types and sizes of packages to be used in packing fruits entering the export trade; authorizes inspections in the packing plants and at the docks; provides for the issuance of inspection certificates and certificates showing that all export regulations have been complied with; and fixes penalties for noncompliance with the regulations. A supplementary law of February 8, 1937, governs the size and type of containers in which fruits are to be packed for export.

Some bananas are grown in practically all parts of Cuba (fig. 21), but the greatest production, including all of those for export, have been grown by small farmers on hillsides in the mountain regions in the extreme eastern end of the island near Baracoa and along the north coast in the Province of Oriente in what is known as the Nipe region. Bananas and plantains grow on most of the good soils of Cuba, but do best on the deep, fertile, friable, alluvial clays and clay loams. Soils that have good drainage and yet conserve moisture during the dry season are best adapted.

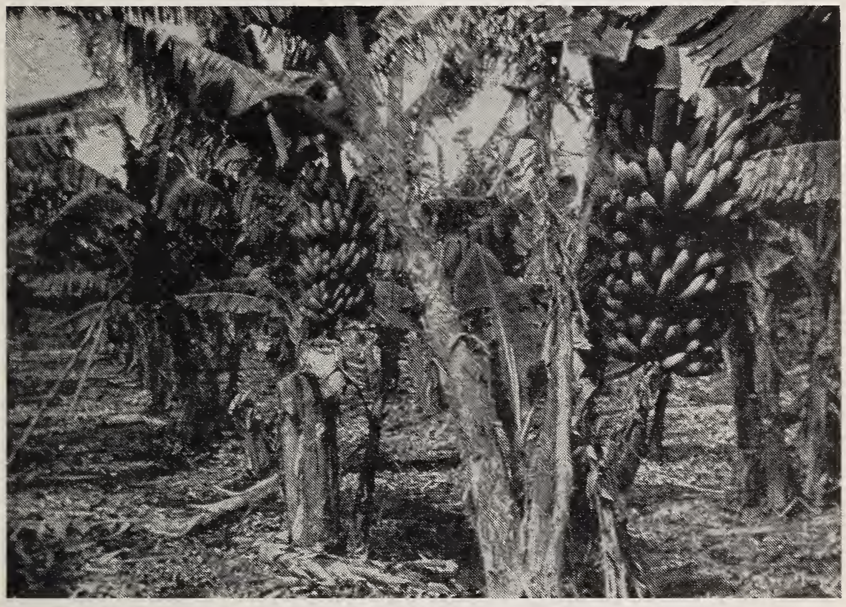

FIGURE 21.—A field of bananas in Cuba.

Planting is by two methods; that is, by either rootstocks or shoots. The latter develop more quickly but are more easily bent and damaged by winds. Rootstocks are planted in March and April and shoots in May, June, and July. The young plants grow quickly during the rainy season, and occasional plowing is necessary to keep down the weeds. Harvesting of the first crop usually takes place about a year after planting. New shoots sprout from the rootstock, and these produce the next crop without replanting. During the first year only one shoot is allowed to remain, but in older plants from three to five shoots are retained. Irrigation has not yet been utilized to any great extent in Cuba.

The principal diseases affecting the banana plant are the fungus Panama disease and, recently, a new disease, sigatoka, also caused by a fungus, which threatens seriously to affect the export-banana industry in Cuba as it already has in other Caribbean countries. This disease can be controlled through repeated spraying, but this requires installation of expensive equipment in addition to the cost of spray materials, with the result that the cost of production is materially increased. This in turn forces a more intensive production with the application of commercial fertilizer and irrigation in order to produce higher yields and greater returns to compensate for the greater expenses per acre incident to spraying.

Bananas are ready for harvest (both for export and for domestic consumption) when they attain full size and the color of the fruit changes very slightly. Each stalk produces only one bunch, or stem, and when the bunch is cut the entire stalk is cut down and the new shoots produce the next crop. Present yields are estimated at about 100 bunches an acre. In areas with a more intense cultivation and irrigation, the yield may be increased to 250 or 300 bunches an acre.

The fruit is transported to the nearest port or market on muleback, or is carried to the edge of the field where it may be loaded onto carts or trucks. At the ports the fruit is promptly loaded onto refrigerated ships. Slightly more than one-half of Cuba's exports have recently been through the port of Baracoa and about one-fourth through Sama, with smaller quantities through Tánamo, Banes, Guantámano, and Gibara.

The United States is the largest consumer of bananas in the world, but practically none are grown within its borders and only small quantities are supplied by the insular areas, Hawaii, Puerto Rico, and the Virgin Islands. The principal suppliers to the United States are Central America and Mexico (table 28), while Jamaica, the largest single exporter, normally ships to Europe. Consumption in the United States in 1937 was near the record level of 1929—66.6 million bunches—but dropped to 52.3 million bunches during 1940. Total imports were valued at 31.4 million dollars in 1937. Practically all Cuba's banana exports are to the United States, amounting to 8.5 million bunches in 1937 but declining to 4.4 million in 1940.

Table 28.—*Banana imports into the United States, by countries of origin,*[1] *1921–40*

Country	Average				Annual			
	1921–25	1926–30	1931–35	1936–40	1937	1938	1939	1940
	1,000 bunches	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*
Mexico	2,111	5,609	7,447	13,668	16,765	15,497	13,913	6,614
Honduras	13,482	19,301	15,646	11,385	9,582	9,889	11,820	14,619
Guatemala	4,923	6,242	3,916	8,515	8,874	9,175	9,588	8,227
Panama	4,599	4,727	5,391	6,414	7,224	6,353	5,696	5,908
Cuba	2,053	3,330	4,020	5,615	8,534	4,227	4,790	4,375
Costa Rica	3,513	4,527	3,289	3,726	4,948	4,074	2,901	3,334
Colombia	2,577	1,676	2,448	3,268	4,612	3,751	2,078	2,274
Nicaragua	2,740	3,178	2,955	1,913	2,501	2,082	1,732	1,162
Haiti	([2])	([2])	182	1,734	1,379	1,443	2,030	3,106
Jamaica	10,229	12,750	3,476	303	85	10	1	169
Others	829	547	755	2,417	2,083	2,742	2,579	2,548
Total	47,056	61,887	49,525	58,958	66,587	59,243	57,128	52,336

[1] Arranged according to importance in 1936–40.

[2] Less than 500 bunches.

U. S. Bureau of Foreign and Domestic Commerce.

The future of the Cuban banana industry depends largely upon the extent of the spread and damage of the sigatoka disease. This may force a distinct shift in the areas and in production methods from the present small hillside farms to the larger and more intensive plantations on level land, with the aid of frequent irrigation and spraying.

Cuba must compete with intensive production in other countries, such as Guatemala, where soil conditions are excellent and labor costs are much lower than in Cuba.

PINEAPPLES

Exports of pineapples, including fresh, canned, and in brine, average well above a million dollars a year. According to the pineapple census there were 14,862 acres in pineapples, with about 107 million plants and a total production of 2,267,000 crates in 1939. Production in 1940 was 3,048,000 crates because of higher yield (table 29). Exports are highly concentrated under the control of shippers. Of the total of 643 growers in 1939, 6 owning 22 farms produced 36 percent of the total crop, and these, in addition, financed the crops of 178 smaller growers, who produced 24 percent of the crop. Together these 6 growers therefore controlled 60 percent of the total production, including all that for export. The remaining 70 percent of the growers, with about 40 percent of the crop, produced only for domestic consumption. Most of the production is concentrated in an area southwest of Habana. The Provinces of Pinar del Río and La Habana produce nearly three-fourths of the total crop. The soils best adapted to pineapple cultivation are the fertile heavy loams, preferably rich in organic matter. Commercial fertilizer is usually applied.

TABLE 29.—*Pineapple production in Cuba, by Provinces, 1939–40*

Province and year	Growers	Area	Plants	Production	Area per farm	Plants per acre	Yield per acre
	Number	*Acres*	*Thousands*	*1,000 crates*	*Acres*	*Number*	*Crates*
1939:							
Pinar del Río	235	8,779	68,385	1,287	37.3	7,772	146.5
La Habana	152	2,358	17,583	346	15.6	7,456	146.9
Matanzas	160	812	3,970	100	5.2	4,889	123.4
Las Villas	20	63	471	16	3.2	7,480	248.9
Camagüey	57	2,769	17,041	514	48.7	6,154	185.8
Oriente	19	81	127	4	4.2	1,570	52.2
Total 1939	643	14,862	107,577	2,267	23.2	7,238	152.6
1940	587	13,082	102,515	3,048	22.2	7,845	233.1

Cuba Sec. de Agr., Censo de Piña, 1940.

Two principal types of pineapple are grown in Cuba; the red, largely for export, and the native white for domestic consumption. The red, known as Piña Morada de Cuba, or Red Spanish, produces a thick cylindrical fruit, purple when immature and pale red when ripe. This is the usual type grown for export because it is better able to withstand shipment. The Piña Blanca produces a conical fruit, retains its greenish yellow color to maturity, and has a sweet, juicy meat; but deteriorates too rapidly to be used extensively for export shipment.

Pineapples are propagated by planting small shoots, which grow on different parts of the plant. The shoots, called criollos, appear on the trunk of the plant, while others grow just underneath the fruit (hijos) and others on top of the fruit (coronas). All three types of shoots are capable of producing new plants when placed in the earth. Criollos are planted in the spring and hijos and coronas in August and September. The shoots are planted in single or double rows separated by a space of 5 or 6 feet between rows to permit cultivation and harvesting. From 6,500 to 8,000 plants are usually set per acre. The criollos bear fruit in about 12 months after planting and the other shoots in about 20 months. The same plants continue to bear one main crop each year for several years before replanting is necessary.

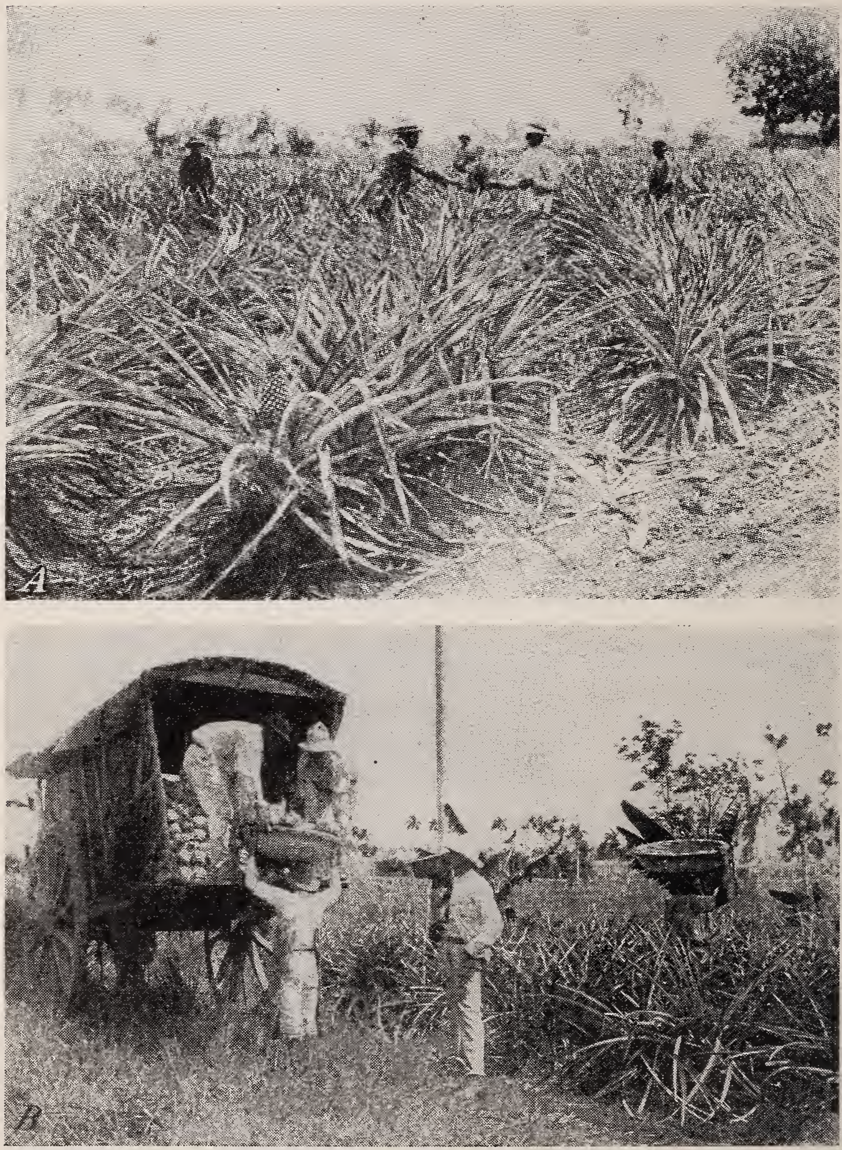

FIGURE 22.—Pineapples are Cuba's second most important export fruit. *A*, field of pineapples; *B*, harvesting pineapples.

For local consumption, pineapples are harvested when fully ripe. Those for export are picked earlier. Some pineapples are harvested for export during every month of the year, but the main crop is in

April, May, and June, when more than 85 percent of the exports are made. Harvesting consists of cutting off the fruit with a sharp knife as the individual fruit nears maturity and carrying it in large baskets to carts or trucks (fig. 22). One cutter and two carriers can harvest about 3,600 pineapples in a 10-hour day. Packing is done by independent packers and also by growers on the large plantations. Standard crates of 2.45 cubic feet, weighing 80 pounds gross and 75 net, are packed with fruit of uniform sizes, designated as 18's, 24's, 30's, 36's, 42's, and 48's, according to the number of pineapples in a crate.

The quantity and value of exports are shown in table 26, from which it will be noted that most of the pineapples are exported as fresh fruit but that the proportion of canned fruit has materially increased during recent years. Most of the canned and practically all of the fresh fruit is exported to the United States. Cuba supplies over half of all the fresh pineapples used in the United States. Production in continental United States is limited to a small area in Florida, producing only about 20,000 crates a year. In addition, about 50,000 crates are obtained from Hawaii and nearly 500,000 crates from Puerto Rico. Of the imports from foreign countries, totaling about 1,400,000 crates, Cuba supplies about three-fourths and Mexico about one-fourth. Of canned pineapple, Hawaii is by far the most important supplier.

Cuban fresh pineapples are competitive with those from Puerto Rico, the growing season for both being substantially the same, although shipments from Puerto Rico arrive earlier and continue later than those from Cuba, most of which are concentrated in April to June. Cuban fruit usually undersells Puerto Rican in the United States markets in spite of the fact that Cuban pineapples are subject to a duty of 20 cents a crate, whereas those from Puerto Rico are duty-free. However, much of the Cuban fruit is shipped through New Orleans to Chicago, whereas Puerto Rican fruit is most important on the New York market.

Citrus Fruits

Oranges, grapefruit, and limes are grown in most parts of Cuba and are used extensively for domestic consumption. Only grapefruit are exported in any quantity. Oranges are of several types, including sour, bitter, sweet, and wild. Limes are also grown, principally for local consumption, although small quantities with a value of from $1,000 to $5,000 annually are exported.

The principal production of grapefruit for export is in the Isle of Pines, where the light sandy soil and climate are particularly favorable. Here a number of plantations were started, largely by people from the United States. It is estimated that present commercial orchards on the Isle of Pines consist of about 1,000 acres of grapefruit, 400 acres of oranges, and a considerable acreage of limes. Most of the grapefruit and orange trees are already 20 to 30 years old, and few new plantings have been made because of the declining profitableness of the industry since the rapid expansion of production in the United States.

Of the grapefruit varieties it is estimated that those with seeds make up slightly more than one-half of the total, while the seedless, largely Marsh, constitute less than one-half. Trees are usually planted 18 to 20 feet apart, depending on the stock and the variety. Commercial fertilizers are extensively used to compensate for the light soil, improve the quality of the fruit, and assure early maturity.

The main harvesting season is from August to October for export, but continues to April or May for domestic consumption. The fruit is packed by growers and by independent packers in crates or boxes of 70 pounds net weight. Growers usually sell the fruit when it is delivered to the packing house in the Isle of Pines. After packing, it is trucked to the dock at Nueva Gerona, where it is loaded on boats and shipped overnight to Batabanó, in Cuba, from there by rail to Habana, and finally again by boat to foreign markets. Commission merchants handle the transportation and marketing for export, usually on consignment for sale at auction in New York, St. Louis, and Chicago, as well as in the English market. During recent years, 1936–41, Cuban exports of grapefruit ranged from 90,000 to 200,000 boxes annually, of which from 76 to 97 percent were to the United States and the remainder almost entirely to England.

United States imports of grapefruit from Cuba are very small compared with the total consumption (table 30). Domestic production in the United States, chiefly in Florida, Texas, California, and Arizona, has increased steadily in recent years to about 40 million boxes compared with imports, almost entirely from Cuba, of only about 100,000 boxes. The United States exports about 10 times as much as it imports.

TABLE 30.—*Grapefruit production in the United States and quantities obtained from Cuba and Puerto Rico, 1921–40*

Period	Production continental United States	Domestic exports [1]	Arrivals from Puerto Rico	Imports from Cuba
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Average:				
1921–25	8,668	350	588	170
1926–30	12,555	900	693	106
1931–35	16,870	995	411	95
Annual:				
1936	30,670	704	216	105
1937	31,133	1,004	160	108
1938	43,594	1,235	102	51
1939	34,675	811	29	57
1940 [2]	43,063	[3] 762	91	152

[1] Year beginning Sept. 1.
[2] Preliminary.
[3] 11 months only.

Official statistics.

Imports from Cuba arrive in August and September at a time when production in the United States is seasonally low.[41] Because of this supplementary nature of Cuban shipments, the duty on Cuban grapefruit was reduced under the trade agreement in 1934 to 0.6 cent per pound, or 42 cents per box, effective only during the 2 months August and September. From 1935 to 1938 about 99 percent of the shipments from Cuba arrived during these 2 months, but in 1940 shipments continued relatively heavy during October. Arrivals from Puerto Rico are greater than those from Cuba and continue through a longer season, principally from April to October. Imports from Cuba, therefore, are largely supplementary to production in continental United States but compete with shipments from Puerto Rico during August and September.

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[41] During the month of August United States marketings are only about 5 percent as large as during each of the months October to May. In September United States marketing begins to increase but is still only 20 to 30 percent as large as during winter months.

Avocados

United States imports from Cuba of the famous salad fruit, avocado, usually amount to between $100,000 and $200,000 annually. During 1938 and 1939 the value of avocados from Cuba considerably exceeded the value of grapefruit and thus became Cuba's third-ranking export fruit.

The avocado tree grows in most parts of Cuba, but does best in deep, well-drained soils, preferably gravelly clays. Only about 10 to 15 percent of the total production comes from groves or orchards, the bulk being from numerous farms having 5 to 100 trees scattered over the farm. Where trees are grown in groves, the practice has been to graft shoots from heavy-bearing trees on to the stronger but light-bearing trees. The fruit grows easily from seed, but trees vary much in productivity. Some never flower, others flower but bear little fruit, while others bear heavily. The trees begin to bear in about 4 to 5 years. Commercial fertilizer is used only after the trees come into production.

The principal harvesting season is from June through October, the peak being in July and August (fig. 23). Yields vary widely, from 200 to 2,000 avocados per tree; the average is reported to be about 400.

Although many growers pack their own avocados, about half of the fruit exported is handled by dealers who buy the crop from farmers and grade and pack it in Habana or in production areas near Habana. The fruit is packed either in crates containing about 50 pounds or in flats or lugs of about 20 pounds each.

Practically all the avocados exported from Cuba are shipped to the United States; Cuba is practically the only source of imports into the United States. Production in the United States has increased sharply during the past 10 years to nearly 30 million pounds annually. More than three-fourths of this production is in California, averaging about 25 million pounds, and the remainder in Florida, with roughly 5 million pounds during recent years (table 31). Cuban exports to the United States average about 10 million pounds.

TABLE 31.—*Avocado production in the United States and imports from Cuba, 1926–40*

Period	Production			Imports from Cuba
	California	Florida	Total	
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Average:				
1926–30	1,828	[1] 1,040	2,868	5,798
1931–35	8,448	2,968	11,416	7,460
Annual:				
1936	12,220	1,200	13,420	8,841
1937	10,600	4,200	14,800	11,587
1938	28,200	4,440	32,640	9,971
1939	15,600	5,000	20,600	7,927
1940 [2]	27,200	1,760	28,960	11,927

[1] Average of 1929–30 only.

[2] Preliminary.

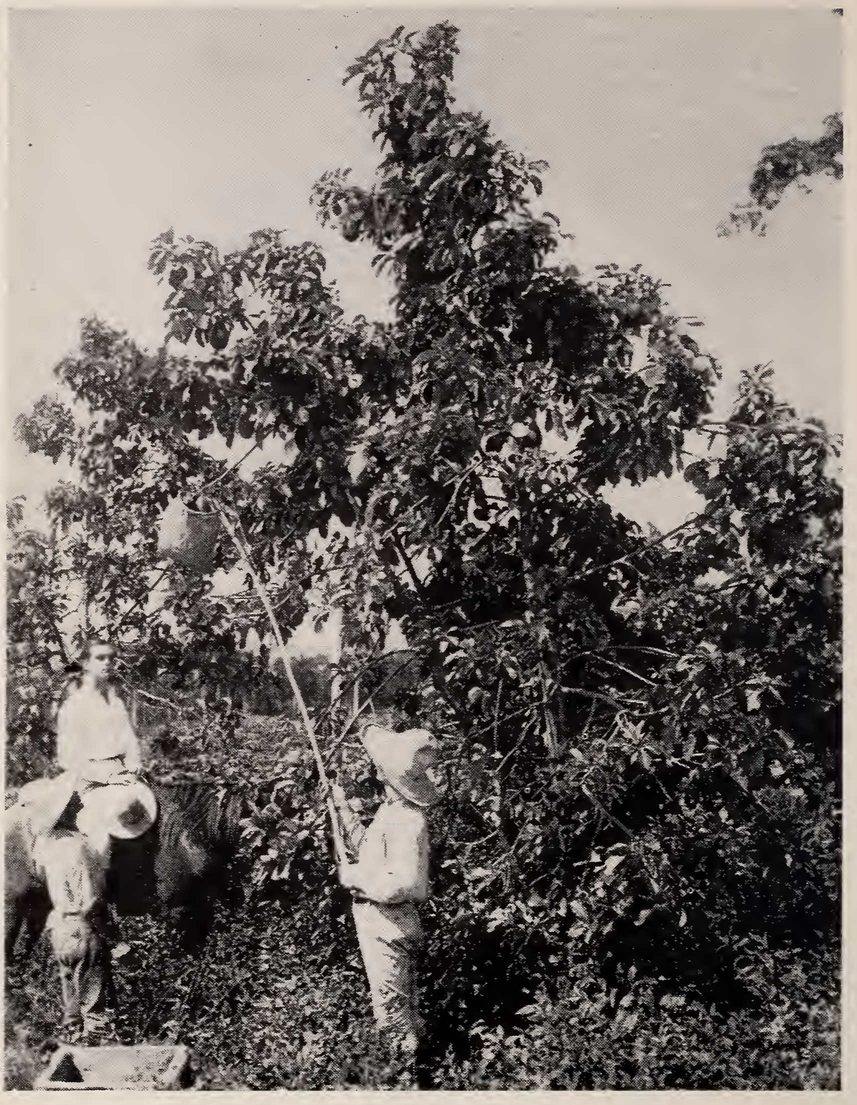

FIGURE 23.—Harvesting avocados.

Florida avocados are of the same general type as those produced by Cuba, but those from California are of the Mexican type. The principal season for the Florida crop now is the fall but extends to the middle of March, whereas that for California is the winter and early spring from December to May. Together the seasons in both States leave a period during the summer when supplies are low, and this is the season when Cuban fruit is most plentiful. Avocados have long been imported free of duty, but under the trade agreement of 1934 Cuba undertook to limit its shipments to the months June through September, thus restricting shipments to the season when domestic supplies are lowest. Imports from Cuba, therefore, are now largely of a supplementary nature.

Other Fruits

PAPAYAS

The papaya, known in western Cuba as fruta bomba, is produced essentially for domestic consumption because it is not well adapted for long shipment. Nevertheless, exports although still small have materially increased during recent years from a value of about $1,000 in 1937 to about 20,000 crates, worth about $21,000, in 1940. Commercial plantings in 1940 are reported at 785,081 plants (*1*). Assuming an average planting of about 6 by 10 feet, or 700 plants per acre, these would be equivalent to an area of about 2,000 acres. Commercial production in 1940 was estimated at about 57 million fruit.

The papaya is a semiwoody plant of treelike growth and usually attains a height of 6 to 15 feet, with a central stem and leaves from the top of the plant. The fruit is borne along the upper part of the stem, each plant commonly bearing from 10 to 30 fruit at one time. The fruit is cylindrical in shape, usually twice to three times as long as wide, and in general resembles a melon (fig. 24). Some varieties are long and narrow and others are pear-shaped and slightly ribbed (*4*). The fruit is from 6 to 20 inches long and usually weighs from 3 to 10 pounds. The smooth, thin skin is green until thoroughly ripe, when it develops an orange-yellow color. The flesh is from 1 to 2 inches thick and has a pale yellow to orange-red color, and the center cavity contains many small, round, black seeds. The flesh is sweet, with a slight musty tang and has a high papain and a low acid content. The papain resembles animal pepsin in digestive action, and consequently the fruit is considered to be of medicinal value. The juice of both the fruit and the leaves has the property of tenderizing meat, and papain can be obtained commercially by tapping immature fruit.

Papayas grow best in a warm climate on rich, deep, well-drained loam soils. They are easily grown from seed, reach maturity in about a year, and continue to bear for 3 or 4 years. The principal varieties grown in Cuba are the Rosado de Mejico, Mamey, and Colombiana.

Papayas are picked at the first sign of ripeness, and if they are to be shipped are packed in single-tier crates containing 10 to 15 papayas and weighing from 30 to 60 pounds, net.

GUAVA PRODUCTS

The guava, or guayaba, is used essentially for domestic consumption, but considerable quantities of guava products, with a value of nearly $100,000 annually, are exported. The guava is borne on a low bushlike tree, which grows wild in Cuba. The fruit is yellowish and about the size of a lime, with thin skin and a pulp full of seeds. The fruit is eaten in the natural state but is also used extensively for making sweet jellies, pastes, and preserves. Jelly is made from the clear juice, whereas the paste contains fine particles of pulp. Both are marketed in Cuba in small bricks wrapped in transparent paper rather than in glass containers. Guava exports consist only of the manufactured products.

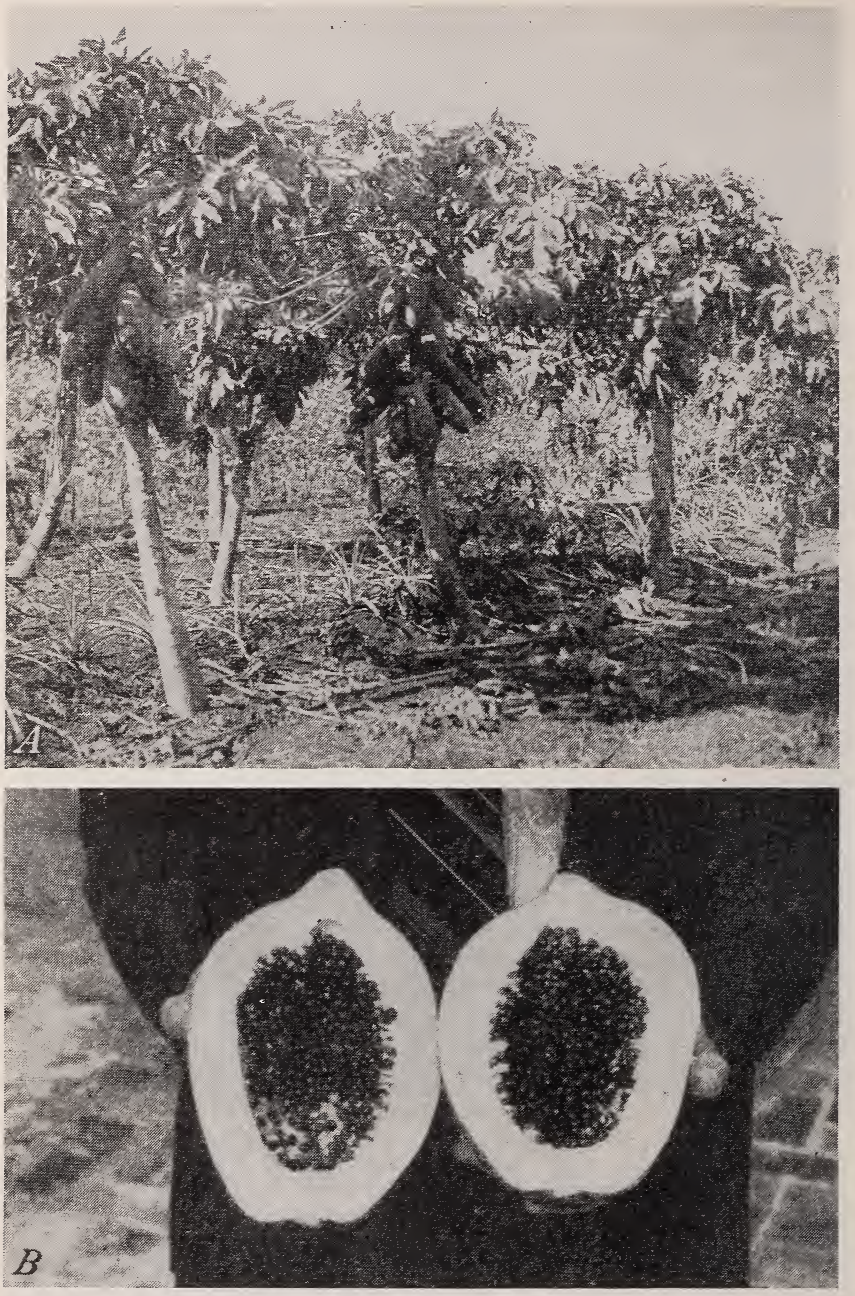

FIGURE 24.—Papayas grow on small trees, but are somewhat similar to melons. *A*, Papaya orchard; *B*, papaya cut to show the small black seeds.

FRUIT FOR DOMESTIC USE ONLY

MANGOES

Mangoes are one of the most popular fruits in Cuba and are widely and easily grown (fig. 25). The fruit is borne on trees, and the main crop ripens in the late spring and summer. Mangoes are about the size of large peaches but are somewhat flattened and elongated. The fruit has a smooth leathery skin with a yellowish-green to red color, frequently with red or black spots when ripe. The closely related manga blanca and manga amarilla are somewhat more rounded and have a lighter color. Each fruit contains a large flattened seed, almost as long and wide as the fruit itself. The meat is salmon-colored, sweet and juicy, and adheres tightly to the seed. In some of the poorer varieties the meat is fibrous and the skin has a slight aroma of turpentine. Among the better varieties are Hayden, Bizcochuelo, Mulgaba, Bombay, Señora, and Filipinos.

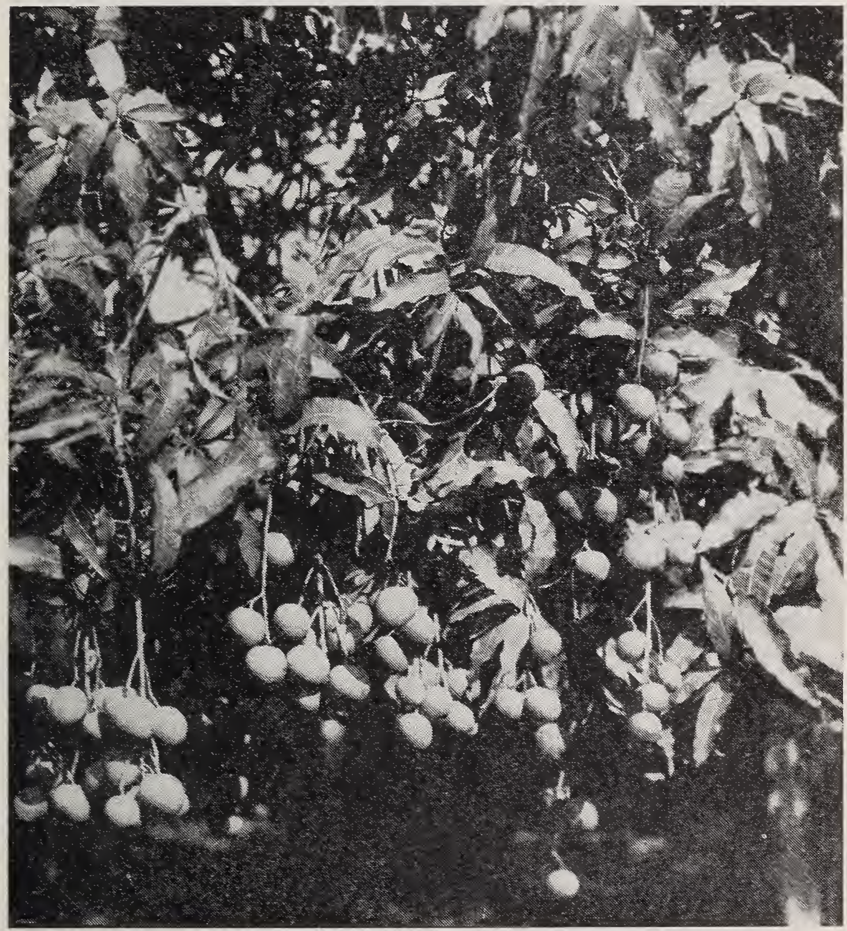

FIGURE 25.—Mangoes are a very important tropical fruit.

The well-defined dry season during the winter is desirable for blooming and ripening and favors development of the fruit which ripens from June to September. Excessive moisture during blooming causes the spread of anthracnose, a fungus disease that destroys the flowers.

Yields per tree vary from a few hundred fruit for the larger varieties to several thousand for the small varieties. The fruit is picked when fully mature, and if it is to be shipped for export must be carefully packed. The customary crate contains six small baskets, each with six large, individually wrapped mangoes.

In the United States some mangoes are grown in southern Florida and a few in California. Imports of fresh mangoes are prohibited into the United States,[42] but a small quantity of canned mangoes is imported.

OTHER TROPICAL FRUITS

The mamey colorado (*Mammea americana*) [42] is a large oval fruit with pointed ends. It is 6 to 8 inches long, is covered with a rough rusty-brown skin, and has a bright-red sweet meat with one or two large black-brown seeds (fig. 26, *A*). The fruit is eaten fresh and is very popular.

The anón (*Annona squamosa*) is sometimes known as the sweetsop or sugar apple and grows on small trees. The fruit is round, somewhat heart-shaped, 3 to 5 inches in diameter, consists of numerous small sections like the surface of a pineapple, and has a yellowish-green skin, black in spots, and a creamy-white sweet pulp. Because of its delicacy and peculiar structure the fruit does not withstand shipment and is consumed locally.

The cherimoya (*Annona cherimola*) or custard apple is of the Annonaceae family and resembles the anón but has a somewhat smoother surface; and although the skin is marked into U-shaped sections, they do not carry through the entire fruit (fig. 26, *B*). The meat is white and pleasantly acid. It is usually reddish to red-brown when ripe, and has a sweet but tallowlike granular pulp adhering to the seeds.

The guanábana, or soursop (*Annona muricata*), also a member of the Annonaceae family, is large and heart-shaped, or like an inverted pear, with a dark-green ill-smelling skin bearing numerous small spines. The meat is white, juicy, and pleasantly acid, and its juice is used in making a favorite Cuban drink. It is also used for jellies and preserves.

The zapote, or sapodilla (*Achras zapota*),[42] is a fruit about the size of a small peach (fig. 26, *C*). It has a dull skin with a surface like that of a potato and a sugary sweet meat not unlike the persimmon in taste. It is eaten fresh and can be shipped only with the greatest care in packing.

The caimito (*Chrysophyllum cainito*) is about the size of a small apple, has a smooth skin, and a sweet somewhat gelatinous pulp containing several small seeds (fig. 26, *D*). There are two principal kinds; the white, which has a pale-green skin and white meat, and the purple, which has a dark-purple skin, the color going through the meat almost to the center.

The tamarind (*Tamarindus indica*) is a beanlike fruit with a brindle-brown shell and a dark fibrous juicy pulp in which is imbedded a

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[42] Fresh mangoes, guavas, mameys, and zapotes are prohibited entry into the United States because of possible fruit fly infestation.

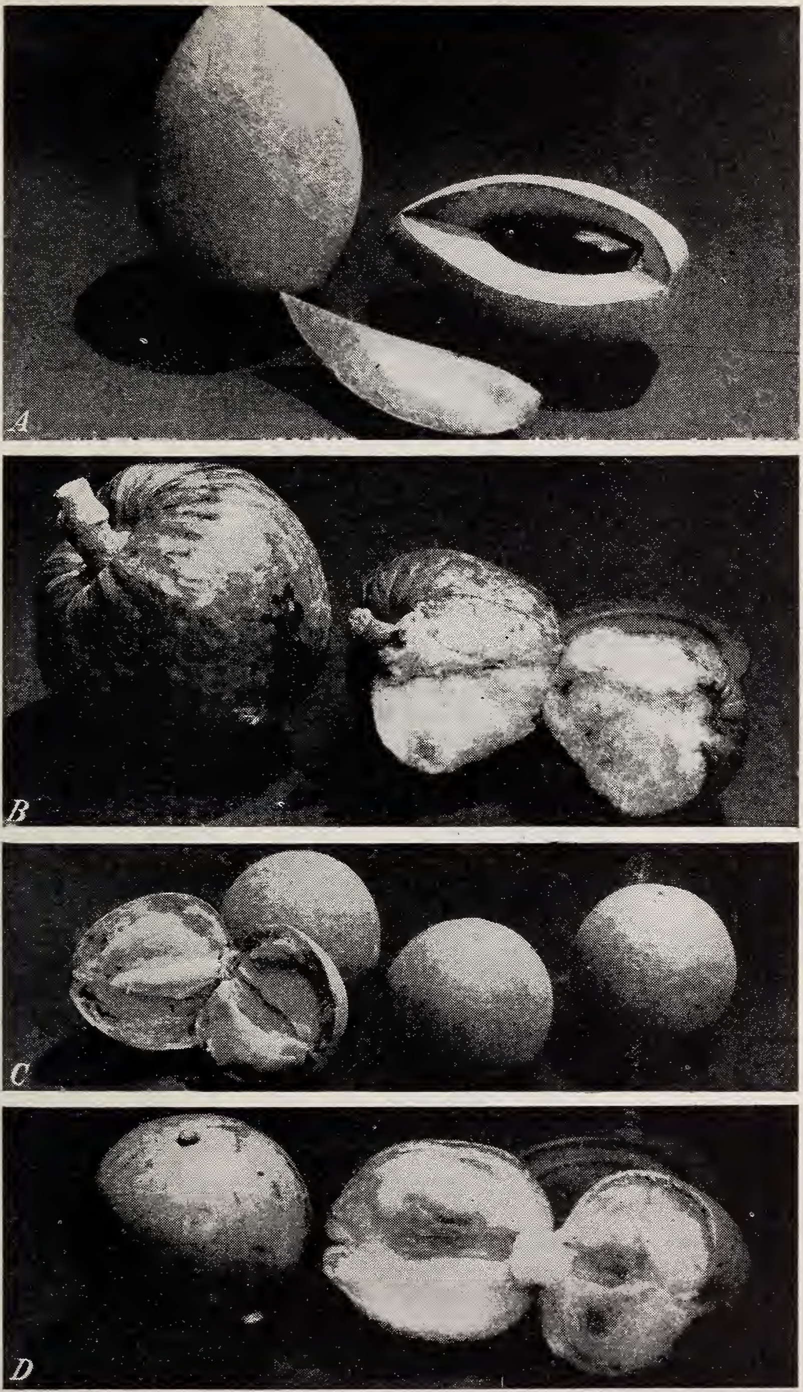

FIGURE 26.—Some typical Cuban fruits: *A*, Mamey colorado; *B*, cherimoya; *C*, zapote, or sapodilla; *D*, caimito.

large flat seed. The fruit has a pleasantly acid taste and is used almost exclusively for flavoring for a fruit drink.

Coconuts for local consumption are grown on a small scale in most parts of Cuba. Before 1900 as many as 25 to 30 million coconuts were gathered annually, but disease has attacked the trees in many regions and has greatly reduced the economic importance of this product during recent years. Production is sufficient only for local use as food and is not sufficient to permit quantity exports or use in the manufacture of copra and coconut oil. Many coconuts are used green as a drink and the riper ones for making ice cream.

IMPORTS OF FRESH FRUIT

Although native bananas and citrus fruits are available in Cuba throughout the year, most of the other fruits, such as pineapples, mangoes, avocados, and mamey, are produced chiefly during the summer months. Cuba does not produce apples, pears, peaches, plums, and grapes and therefore offers a limited market for these complementary Temperate Zone fruits, especially during the fall and winter. About 95 percent of all imported fruit is from the United States; figs and dates are the only kinds of which important quantities are supplied by other countries. Imports of fruit during recent years have amounted to one-half to three-fourths of a million dollars in value annually. Over half consist of fresh fruit and the remainder of canned and dried (table 32).

TABLE 32.—*Fruit imports into Cuba, 1931–40*

Kind	Quantity							Value, average 1936–40	Percentage from United States 1936–40
	Average		Annual						
	1931–35	1936–40	1936	1937	1938	1939	1940		
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*Percent*
Fresh:									
Apples	2,634	5,738	4,252	4,343	6,734	5,576	7,787	209	99
Grapes	1,446	1,957	1,596	1,739	2,325	1,843	2,284	91	100
Pears	785	1,316	1,127	902	1,506	1,460	1,583	66	99
Peaches	137	83	181	33	123	64	13	4	100
Plums	77	52	95	11	42	102	11	3	100
Others	503	914	608	1,378	910	567	1,106	47	86
Total, fresh	5,582	10,060	7,859	8,406	11,640	9,612	12,784	420	98
Dried:									
Raisins	200	768	646	787	802	767	838	36	85
Figs	64	253	287	265	324	238	152	20	29
Dates	455	166	231	187	79	117	218	16	76
Others [1]	587	984	840	906	1,129	963	1,080	53	94
Total, dried	1,306	2,171	2,004	2,145	2,334	2,085	2,288	125	79
Canned	1,230	2,929	2,765	3,067	2,857	2,800	3,155	258	97
Total, all fruit	8,118	15,160	12,628	13,618	16,831	14,497	18,227	803	95

[1] Largely prunes.

Official trade data.

About half of Cuba's imports of fresh fruit are of apples. They are chiefly for eating fresh, and about 75 percent are of the Delicious variety from the Pacific coast and Yorks from Virginia. Grapes rank second only to apples. Imports are supplied almost entirely by California, chiefly of the White Malaga and Emperor varieties. Pears are chiefly of the Bartlett, Anjou, and Comice varieties from the Pacific Coast States. For Comice from the United States, Cuba is the third most important foreign market.

Winter Vegetables

The production of winter vegetables for the United States market is an industry of considerable importance in certain sections of Cuba and provides income for many small farmers, in addition to employment in packing and marketing. The total value of exports is usually well over a million dollars annually, and winter vegetables thus rank as Cuba's fourth most important group of export crops. Much of the capital invested in the production and marketing, as well as seed, fertilizers, implements, and packing materials, is supplied by American interests.

IMPORTANCE AND OPERATION OF THE INDUSTRY

Cuba's vegetable crops may be divided into two groups: (1) Those grown principally for export, including tomatoes, lima beans, eggplant, green peppers, okra, cucumbers, and some potatoes, and (2) those grown for local consumption, including dried beans, sweetpotatoes, yams, yuca, malanga, onions, and some cabbage and lettuce. In addition to the domestic production, Cuba imports considerable quantities of red and white beans, garlic, and onions and some fresh vegetables, such as lettuce, celery, cauliflower, green peas, and tomatoes out of season. Whereas exports of fresh vegetables average about $1,050,000 in value annually, imports of the fresh vegetables just mentioned amount to about $50,000 annually, almost entirely from the United States.[43] Table 33 shows the average value of each of the Cuban vegetables imported into the United States during the 5 years 1936–40 as compared with the preceding 5-year period.

TABLE 33.—*Vegetable imports into the United States from Cuba, by value, 1931–35 and 1936–40*

Kind	1931–35	1936–40	Kind	1931–35	1936–40
	1,000 dollars	*1,000 dollars*		*1,000 dollars*	*1,000 dollars*
Tomatoes	594	826	Cucumbers	61	56
Lima beans	106	124	Potatoes	37	43
Eggplant	75	123	Others	[1] 32	16
Peppers	49	81			
Okra	[1] 40	72	Total	994	1, 341

[1] Estimated.

The principal commercial winter-vegetable-growing regions are in the western half of the island, in the Provinces of La Habana, Pinar del Río, and Las Villas, and in the Isle of Pines. (See fig. 27.) Much of the land now planted to vegetables was formerly used for tobacco; the low returns for tobacco encouraged the shift to the more profitable production of vegetables. Peppers and eggplant are grown near Habana, in the eastern part of Pinar del Río Province,

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[43] In addition, Cuba imports about 1.9 million dollars' worth of dry beans and peas; about 0.8 million dollars' worth of potatoes (largely for seed); and about 0.7 million dollars' worth of onions and garlic.

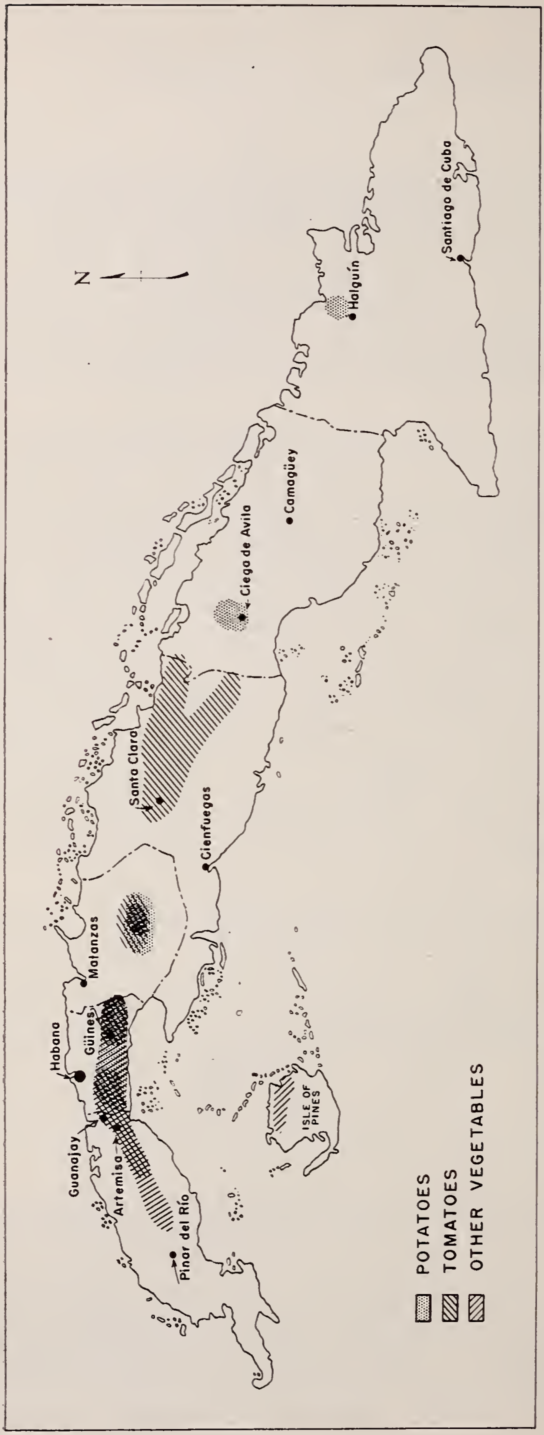

FIGURE 27.—Principal areas of production of winter vegetables in Cuba.

and in the Isle of Pines. About 70 percent of the cucumbers are produced in the Isle of Pines and the remainder in eastern Pinar del Río, near Paso Real, Herradura, and Artemisa. Lima beans are grown principally near the towns along the central highway from Habana west to Guanajay and south of Habana. Okra of the short-pod type is grown in concentrated areas just south and west of Habana and the long-pod type near Artemisa.

Tomatoes are grown in several areas, but with the recent shift toward the eastern area the most important production of the main late crop is now on the gray, clay soils in the northeastern part of Las Villas Province. The early crop is in older areas near Güines in La Habana and in eastern Pinar del Río Provinces, which still produce heavily. Potatoes for export are grown southeast of Habana, from Güines through Matanzas Province.

The soils best adapted for winter vegetables are the easily worked and well-drained sandy and gravelly clay loams common in east-central Cuba. This region also has the advantage of being near the export outlet through Habana. Tomatoes, of course, grow better on the heavier clays, whereas potatoes require loose, sandy soils.

Most of the tomatoes are grown by operators, usually on cash-rented land, the cost of the rent and other expenses usually being advanced by commission houses and receivers who operate through the local storekeeper. Of the other kinds of vegetables, it is estimated that only about one-third are produced by individual farmers and that about two-thirds are produced by administration, that is, by hired labor on the larger farms owned or operated by commission houses.

As is the case in many other crops, the average Cuban grower lacks sufficient capital to finance his operations from season to season. His assets are usually not acceptable as security for bank loans, and consequently private credits in the form of advances are usually made by commission agents and merchants. These advances frequently cover seed, fertilizer, packing material, harvesting expenses, wages, and at times other expenses. In return, the grower is obligated to dispose of his crop through the financing merchant or to offer the latter the first opportunity of purchasing the crop at current prices. In some cases, the financiers are Cuban firms, but for the most part they are American commission houses.

There are no accurate estimates of the total acreage and production of vegetables. Table 34 shows the acreage reported in the census of 1929. The best available indication of the change in production [44] is obtained from the examination of the volume of exports. The greatest increase during the 10 years prior to 1940 has been in tomatoes, the

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[44] A report on the Cuban vegetable industry by the U. S. Bureau of Agricultural Economics in 1937 shows the following estimated average production in 1935–36 and 1936–37. These data indicate abnormally high yields, especially of tomatoes, which probably average nearer 45 to 60 lugs per acre. The figure for the acreage of tomatoes is probably too low (see table 35 for size of containers).

Kind	Acres	Yield per acre	Production
Tomatoes	17.800	134 lugs	2,388,000 lugs.
Lima beans	1,875	164 bushels	307,500 bushels.
Eggplant	1,150	340 crates	390,500 crates.
Peppers	850	350 crates	297,500 crates.
Cucumbers	700	117 crates	82,000 crates.
Potatoes	15,600	117 bushels	1,832,000 bushels.

production of which more than doubled whereas that of most of the other vegetables has not changed greatly and that of peppers has even declined slightly.

TABLE 34.—*Winter-vegetable acreage in Cuba, by Provinces, 1929*

Province	Principally for export						Potatoes
	Tomatoes	Peppers	Okra	Eggplant	Lima beans	Total	
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Pinar del Río	1,405	469	251	314	97	2,536	1,311
La Habana	4.058	707	437	330	173	5,705	2,143
Matanzas	863	39	244	12	1	1,159	685
Las Villas	579	67	121	103	118	988	1,645
Camagüey	298	148	83	40	8	577	189
Oriente	272	100	140	103	184	799	587
Total	7,475	1,530	1,276	902	581	11,764	6,560

Cuban Agricultural Census of 1929.

The land used for most winter vegetables is prepared early in August or September, and the first crop is planted or set out in late September or in October. Tractors and other large machines as a rule are used only on some of the large farms operated under administration. On most farms, oxen and crude implements requiring much hand work are the rule. Frequent cultivation, hoeing, and weeding are necessary, in addition to spraying to control insects and diseases. Minimum wages prescribed by law are now $1.30 per 8-hour day, and in addition the workers receive vacations with pay and benefits from a maternity tax. Considerable commercial fertilizer is used except in the newer tomato areas on the heavier soils in the Santa Clara region. Irrigation is desirable, since most of the export crops are produced in the dry season of the year during the winter, and consequently it is used wherever possible, except for tomatoes. Most of the irrigation at present is by gravity flow from wells with Diesel or electric pumping plants, except in the Güines area, where a river irrigation system has been in operation for many years.

Harvesting and packing involves a great deal of hand labor. Packing is done either on the farm or in towns near producing areas. Shipments for export are subject to strict regulation by the vegetable growers' association and by the Cuban Government, which has done much to maintain a high standard of quality of Cuban vegetables on the export market. Shipment of vegetables that are below the specified minimum size or are misshapen, spotted, dirty, or otherwise defective is prohibited. This regulation is also used to some extent as a means of adjusting the volume of shipments to the market demand. For instance, the exportation of small-sized tomatoes is permitted only when supplies in the United States are abnormally low. A large part of the production, therefore, is unsuitable for export and is consumed locally, either fresh or in the new local canning industry.

The cost of containers, most of which are imported from the United States, varies from about 17 cents for tomatoes and lima beans to 24 cents for eggplant, in addition to from 2 to 6 cents for paper and other packing materials. The freight charge from the packing plant to Habana varies from 5 cents a package for near areas to as much as 12 cents for the more distant areas. Freight from Habana to New

York during normal years varies from about 29 cents per lug of tomatoes to 48 cents per package of some of the other vegetables.

TABLE 35.—*Containers used for exportation of Cuban vegetables* [1]

Product	Container	Approximate weight	
		Gross	Net
		Pounds	*Pounds*
Tomatoes	Lug	39	37
Lima beans	Hamper	40	35
Eggplant	Crate	50	45
Peppers	Crate	45	40
Okra	Basket	40	35
Cucumbers	Crate	50	45
String beans	Basket	35	30
Squash	Crate	70	65

[1] The sizes and shapes of the containers are controlled by law.

From 97 to 99 percent of all Cuba's vegetable exports are to the United States (table 36), although some of these are reshipped through the United States to Canada. The greater part of Cuban exports are to New York City,[45] although important quantities are also shipped through New Orleans. Steamers normally leave several times a week and reach New York in less than 3 days and New Orleans in less than 2. Most tomatoes are sold at auction in the United States, but other vegetables are commonly sold at private sales by commission firms.

TABLE 36.—*Fresh vegetable imports into the United States from Cuba, 1924–25 to 1940–41*

Marketing year [1]	Tomatoes	Lima beans	Eggplant	Peppers	Okra	Cucumbers	Potatoes	Total [2]
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Average:								
1924–25 to 1929–30	14,734	2.099	5,413	7,093	1,057	888	3,734	35,018
1930–31 to 1934–35	29,572	3,734	3,738	2,110	1,479	2.648	2,028	45,309
1935–36 to 1939–40	45,297	4.900	6,046	3,681	1,835	2.709	2,147	66,615
Annual:								
1935–36	42,470	5,696	7,935	5,768	1,727	2,459	2,940	68,995
1936–37	42,845	4,522	5,677	3.238	1,868	2,963	1,450	62,563
1937–38	46,032	6,605	6,643	3,680	1,801	2,014	1,312	68,087
1938–39	39,234	4.328	4,898	1.857	2,088	2,360	820	55,585
1939–40	55,902	3,348	5,077	3,860	1,690	3,747	4,213	77,837
1940–41	48,863	3,787	6.978	7,996	1,503	3,344	19	72,490

[1] 1924–25 to 1929–30 fiscal years, U. S. Tariff Commission (*17*); 1930–31 to 1939–40 crop years, November to June, from records of the U. S. Bureau of Agricultural Economics.

[2] Does not include small quantities of other vegetables, such as squash, string beans, and chayote.

COMPETITION WITH UNITED STATES VEGETABLES

Imports of Cuban vegetables are highly seasonal and limited to the winter and early spring months, when field production is not possible in most of the United States. Florida and Texas are practically the only areas that produce the kinds of early winter vegetables imported from Cuba, and shipments even from these States are heaviest during the months when Cuban shipments are relatively low. Only the southernmost counties of Florida and Texas have about the same shipping season as Cuba. Furthermore, imports from Cuba are only for consumption as fresh vegetables, whereas much of the domestic crop in the United States is grown for canning.

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[45] United States customs regulations provide that certain products may enter only through specified ports; for instance, lima beans may enter only through New York.

Table 37.—*Fresh-vegetable imports into the United States from Cuba, by months 1935–36 to 1940–41*

[Italic numbers indicate period of seasonally reduced import duty]

Item	November	December	January	February	March	April	May	June	Proportion during reduced duty periods
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
Tomatoes: [1]									
1935–36	5	*211*	*261*	*185*	101	39	1	(2)	82
1936–37	33	*212*	*232*	*181*	131	18	1	(2)	77
1937–38	15	*229*	*251*	*261*	92	6	0	14	85
1938–39	40	*174*	*262*	*160*	91	13	(2)	0	81
1939–40	23	*93*	*189*	*262*	355	127	6	(2)	52
1940–41	42	*168*	*147*	*207*	297	77	2	0	56
Lima beans: [3]									
1935–36	14	*74*	*39*	*32*	*19*	(2)	*0*	0	92
1936–37	16	*37*	*51*	*18*	*19*	(2)	*0*	0	89
1937–38	16	*59*	*36*	*46*	*47*	*0*	*0*	2	91
1938–39	20	*20*	*50*	*18*	*22*	*6*	*0*	0	85
1939–40	7	*22*	*23*	*13*	*23*	*17*	(2)	0	93
1940–41	18	*33*	*18*	*23*	*26*	*0*	*0*	0	85
Eggplant: [4]									
1935–36	(2)	*14*	*53*	*65*	*80*	26	2	0	88
1936–37	2	*31*	*37*	*38*	*51*	12	1	0	91
1937–38	(2)	*5*	*23*	*61*	*78*	32	(2)	2	83
1938–39	2	*30*	*39*	*40*	*32*	5	(2)	0	95
1939–40	0	*10*	*26*	*22*	*38*	46	12	(2)	62
1940–41	3	*28*	*36*	*52*	*62*	30	4	0	83
Peppers: [5]									
1935–36	0	8	*53*	*77*	*77*	*15*	1	(2)	96
1936–37	1	11	*53*	*21*	*34*	*8*	2	(2)	89
1937–38	(2)	7	*54*	*72*	*13*	*1*	0	(2)	95
1938–39	(2)	6	*40*	*13*	*8*	*7*	(2)	(2)	92
1939–40	(2)	3	*13*	*21*	*46*	*55*	16	1	87
1940–41	(2)	8	*44*	*72*	*110*	*67*	18	1	93
Okra: [3] [6]									
1935–36	7	*10*	*5*	*2*	*8*	*9*	*7*	(2)	85
1936–37	6	*9*	*13*	*11*	*10*	*9*	*2*	(2)	90
1937–38	3	*7*	*10*	*9*	*12*	*8*	*3*	0	95
1938–39	2	*10*	*8*	*7*	*10*	*11*	*5*	1	94
1939–40	3	*5*	*8*	*7*	*10*	*13*	*4*	(2)	94
1940–41	3	*0*	*5*	*5*	*9*	*10*	*5*	1	90
Cucumbers: [1]									
1935–36	(2)	*14*	*20*	*13*	3	1	0	0	92
1936–37	(2)	*20*	*22*	*13*	7	(2)	0	0	89
1937–38	1	*12*	*12*	*10*	5	1	0	1	81
1938–39	1	*19*	*16*	*11*	2	0	0	0	94
1939–40	(2)	*18*	*18*	*29*	11	2	0	0	83
1940–41	(2)	*19*	*9*	*25*	16	1	(2)	0	76
Potatoes: [1]									
1935–36	0	*2*	*3*	*12*	13	15	0	4	35
1936–37	0	(2)	*10*	*6*	7	(2)	0	0	70
1937–38	0	*1*	*17*	*4*	0	(2)	0	0	98
1938–39	0	*9*	*2*	*2*	(2)	1	0	0	93
1939–40	0	*0*	*1*	*14*	34	22	0	0	21
1940–41	0	*0*	*0*	*0*	3	0	0	0	0

[1] Seasonally reduced import duty during December, January, and February.
[2] Less than 500.
[3] Seasonally reduced import duty during December through May.
[4] Seasonally reduced import duty during December through March.
[5] Seasonally reduced import duty during January through April.
[6] In terms of baskets of 35 pounds net weight.

Compiled from official records U. S. Bureau of Foreign and Domestic Commerce.

The shipping seasons for the various vegetables are shown in figure 28. Table 37 shows the quantities imported into the United States each month from November 1935 to June 1941. Tomatoes, lima beans, and okra are the first to arrive in November, whereas most of the others are not shipped in volume until December. The peak months for tomatoes, lima beans, and cucumbers are December, January, and February, and for peppers, eggplant, and potatoes, the peak is about a month later, January, February, and March. Okra has the longest season with relatively heavy volume from December to April. By the last of April the shipping for practically all vegetables is ended.

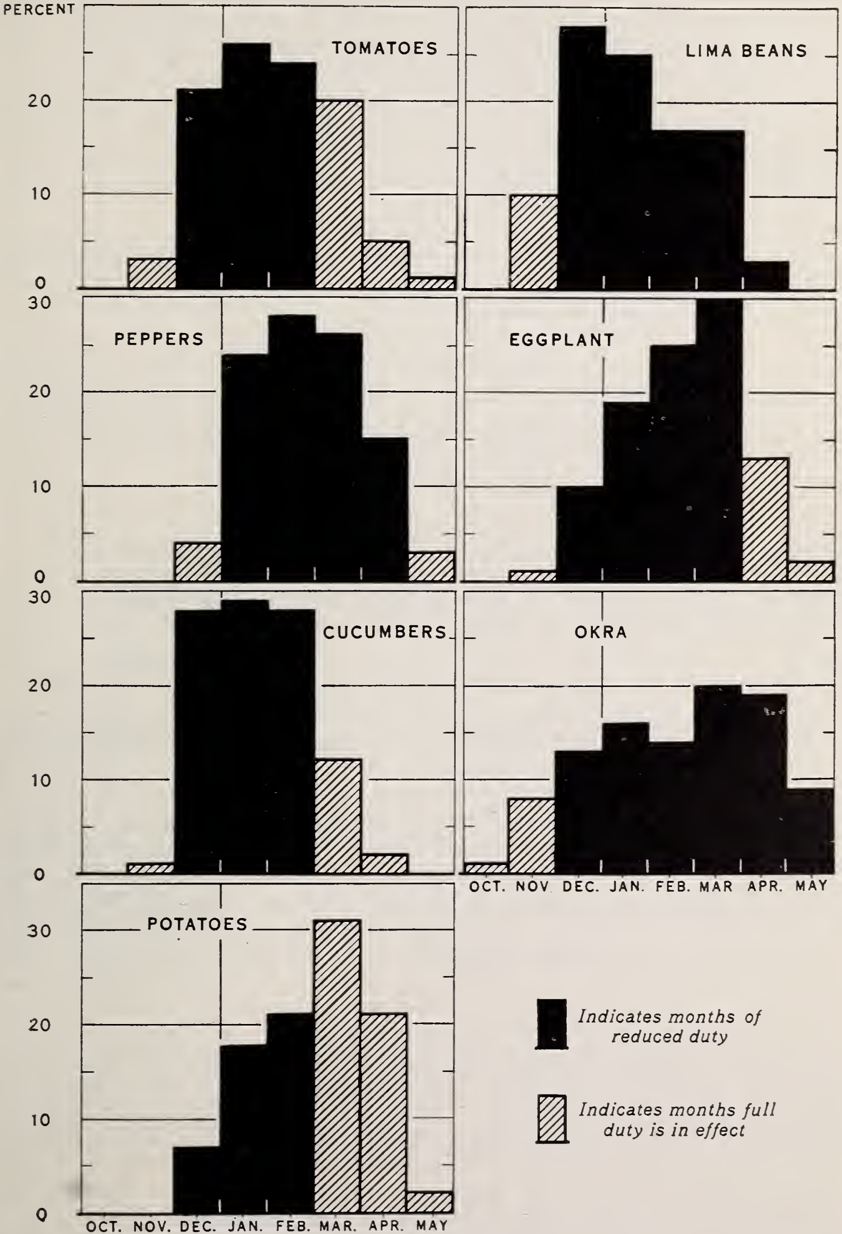

Figure 28.—United States vegetable imports from Cuba, percentage distribution by months, average 1935–36, 1939–40.

Prior to 1930 import duties on fresh vegetables into the United States were relatively low, but under the Tariff Act of 1930 the basic rates were sharply increased, especially for tomatoes and lima beans, which were increased from 0.5 cent a pound to 3 and 3.5 cents, respectively. Subsequently, under the Trade Agreement of 1934 the duties on Cuban vegetables were reduced during certain months when the supplies in the United States were normally insufficient, thus minimizing the degree of competition with Florida and Texas growers. The reduction in duty is applicable only during the months specified, and in most cases the rates even during those months are still higher than they were before the increase in 1930. Table 38 shows the rates of duty effective since 1930 and the months during which the reductions have been effective since 1934.

TABLE 38.—*Duties on fresh vegetables imported into the United States since 1934*

Product	Duty per pound			Percentage preference to Cuba since Sept. 3, 1934		Months (inclusive) during which duty to Cuba is reduced after Sept. 3, 1934
	Basic rate (Tariff Act of 1930)	Rates to Cuba since Sept. 3, 1934				
		Except during reduced-duty months [1]	During reduced-duty months	Except during reduced-duty months	During reduced-duty months	
	Cents	*Cents*	*Cents*	*Percent*	*Percent*	*Months*
Tomatoes	3.0	2.4	1.8	20	40	Dec.–Feb.
Lima beans	3.5	2.8	1.4	20	60	Dec.–May.
Eggplant	1.5	1.2	.6	20	60	Dec.–Mar.
Peppers	2.5	2.0	1.5	20	40	Jan.–Apr.
Okra [2] percent	(50)	(40)	(20)	20	60	Dec.–May.
Cucumbers	3.0	2.4	1.2	20	60	Dec.–Feb.
Potatoes	.75	.6	.3	20	60	Dec.–Feb.
Squash	2.0	1.6	1.2	20	40	Dec.–May.
String beans	3.5	2.8	2.8	20	20	No seasonal reduction.

[1] Cuba has been guaranteed a 20-percent preference since 1902 on practically all products on which there is an import duty. The rates in this column were therefore applicable after the passage of the Tariff Act of 1930.

[2] Duty is calculated as percentage of value (ad valorem).

Cuban producers have had a 20-percent duty advantage, or preference, since the Reciprocity Treaty of 1902, but under the Trade Agreement of 1934 an increased preference was guaranteed during specified months as follows: 40 percent on lima beans and 50 percent on eggplant, cucumbers, okra, and potatoes. The actual preference during these months has amounted to 40 percent for tomatoes, peppers, and squash and 60 percent for other kinds except green beans, for which the preference remains 20 percent. Even at the minimum rates seasonally applicable to Cuban vegetables, the duties have been equivalent to about 55 percent ad valorem in New York for lima beans, about 60 percent for cucumbers and squash, 70 percent for peppers, and 98 percent for tomatoes. Since the Trade Agreement, Cuban shipments to the United States have been at a materially higher level than before, but part of the increase must be attributed to the general trend toward increased consumption of fresh vegetables, as reflected also by the increased production in the United States.

There is no evidence to indicate that the seasonal duty reductions on vegetable imports from Cuba have prevented the growth of this industry in the United States.[46] During the six seasons following the reduction in duties in 1934, the winter vegetable industry in the United States has continued to expand. The acreage [47] planted has increased, the farm value of the crops has increased, and prices have been well maintained (table 39).

TABLE 39.—*Florida acreage, production, and value of six principal vegetables,*[1] *1928–29 to 1939–40*

Item	Average			
	1928–29 to 1930–31	1931–32 to 1933–34	1934–35 to 1936–37	1937–38 to 1939–40
Planted area, all Florida .... 1,000 acres	....	123.0	154.1	163.4
Harvested area:				
Southern Florida [2] .... do	....	78.2	105.7	105.8
Other Florida .... do	....	37.1	32.5	37.3
Total .... do	112.6	115.3	138.2	143.1
Production, all Florida .... million bushels	11.2	12.8	12.4	17.4
Value, total .... million dollars	22.7	16.7	20.2	24.1

[1] 6 most important vegetables affected by the Cuban Agreement: Tomatoes, eggplant, peppers, cucumbers, potatoes, and green beans.

[2] Including the counties of Indian River, Okeechobee, Highland, Hardee, Manatee, and all others to the south.

U. S. Department of State, The Winter Vegetable Industry and the Trade Agreement With Cuba, Jan. 15, 1941.

The average annual value of the production of these vegetables in Florida during the 6 years following the agreement was 32 percent higher than preceding the agreement, and in Texas the farm income from early tomatoes and potatoes during this period increased more than 16 percent.

Although the Cuban vegetable industry to some extent is competitive with production in southern Florida and Texas, it is primarily of a supplementary nature and assures supplies during periods of low production in the United States. It also provides a reserve supply in case of severe crop damage in the United States from frost, wind, or rain, which frequently results in severely curtailed production, as in 1934–35 and 1939–40 after the freezes in Florida and in 1935–36 after the hurricane. Competition between the States is probably a more important factor than the competition from Cuba, particularly since Cuban produce, because of its excellent quality, usually sells in New York at a higher price than domestic produce.

COFFEE

Cuba does not rank among the great coffee-producing countries of the world. It does produce, however, about 60 million pounds a year and not only supplies the country's needs but during the 4 years 1937–40 exported an average of 16.7 million pounds, with a value of about 822,000 dollars annually, or nearly 30 percent of the total production. From one-half to three-fourths of these exports were to the United States, though Cuba is only a minor source of coffee to the United States market, supplying only about 10 million pounds out of the total United States imports of 1,800 million pounds.

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[46] U. S. DEPARTMENT OF STATE. THE WINTER VEGETABLE INDUSTRY AND THE TRADE AGREEMENT WITH CUBA. 16 pp. Jan. 15, 1941. [Mimeographed.]

[47] The harvested acreage of the so-called fall crop of tomatoes in Florida and Texas, largely marketed during December, increased from an average of 3,450 acres in 1926–30 and 4,670 in 1931–33, just prior to the agreement, to 10,760 in 1936–40. Similarly, the planted acreage of the Early-I crop in southern Florida, usually harvested from January to April, increased from 11,740 acres to about 18,850 acres during the same period.

Most remarkable has been the shift or cycle in the volume of Cuban coffee production and trade. Although the industry has expanded during the past 15 years, it is by no means new to Cuba. It was first introduced successfully in 1748 by Gelabart, who brought from Santo Domingo seeds of the Hope of Arabica variety, which is still the most important in Cuba. In 1846 there were 2,328 coffee plantations producing about 50 million pounds of coffee. During the 5 years 1848–52, exports averaged about 17 million pounds annually. After 1860 the industry declined, largely as a result of the increased attention to sugar, increased coffee production abroad, and destruction resulting from wars in Cuba. During the early years of the Republic, after the turn of the century, coffee production was almost entirely neglected. Periodically good crops were harvested and some coffee was exported, but as a rule production was far short of domestic requirements, with the result that during the 5 years 1926–30 more than 16 million pounds annually had to be imported (table 40).

TABLE 40.—*Coffee production, imports, and exports, Cuba, 1911–40*

Period	Quantity				Value		
	Production [1]	Imports	Exports		Imports	Exports	
			Total	To United States		Total	To United States
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Average:							
1911–15	------------	22, 280	12	10	3, 401	2	1
1916–20	------------	28, 173	2	(2)	4, 943	1	(2)
1921–25	------------	30, 270	1	(2)	5, 682	(2)	(2)
1926–30	44, 186	16, 186	6	(2)	3, 296	1	(2)
1931–35	53, 868	513	5, 462	2. 142	79	470	200
1936–40	60, 537	1, 610	13, 662	8, 076	90	743	396
Year:							
1936	55, 776	127	4, 942	1, 676	19	427	115
1937	47, 323	72	14, 683	9, 250	11	1, 131	653
1938	72, 162	13	15, 041	7, 645	2	677	318
1939	59, 170	488	18, 777	14, 007	6	856	570
1940	68, 254	7, 352	14, 863	7. 800	361	626	322
1941	59, 256	263	10, 044	9, 501	23	685	663

[1] Production data are for crop years beginning August 1.
[2] Less than 500.

Calculated from official sources.

In order to revive the industry, the Cuban Government in October 1927 inaugurated a policy of higher duties on imported coffee, with the result that imports dropped from nearly 23 million pounds in 1927 to less than 12 million in 1928. In 1930 the rate of duty was again raised almost to the point of being prohibitive, and subsequently imports dropped to 0.1 million pounds annually until 1939. The desired result was achieved, and production again expanded to an export-surplus stage.

Coffee production in Cuba is essentially a mountain industry, since good quality is produced only at altitudes from 1,000 to 1,500 feet. Consequently, plantings are largely in the small mountain valleys and along the slopes at high altitudes. Coffee is grown in three different districts of Cuba, but by far the most important, with about 85 to 87 percent of the total production, is in the mountainous regions of southern and eastern Oriente Province, in the municipalities of Alto Songo, Yateras, El Cobre, Jiguaní, Guantánamo, and Bayamo. The second coffee-growing region is in central Cuba, in the southern part of Las Villas Province in the mountains between Cienfuegos and Trinidad, with roughly 12 to 14 percent of the country's production. The third region, of minor importance with about 1 percent of the total production, is in western Cuba, in the Cabanas and San Cristóbal districts of Pinar del Río Province.

According to the 1936–37 census, there were 8,041 coffee farms or plantations having an area of about 700,000 acres, of which about 150,000 acres were planted to coffee (fig. 29). Each grower has therefore an average of 18.6 acres. Most of the growers have small acreages; nearly one-fourth have less than 4 acres, and nearly two-thirds have less than 16 acres, as indicated by table 41. Some of the growers own their land, but most of them rent, either on a cash or a share-rent basis.

TABLE 41.—*Coffee acreage per farm in Cuba, by Provinces, 1935–36*

Acres per farm in coffee	Number of plantations			
	Oriente	Las Villas	Pinar del Río	Total
Less than 4	1,703	84	19	1,806
4 to 7	1,491	58	33	1,582
8 to 15	1,477	186	33	1,696
16 to 24	1,004	184	25	1,213
25 to 32	667	223	10	900
Over 32	729	114	1	844
Total	7,071	849	121	8,041

Coffee trees in Cuba are grown only under shade, which is generally supplied by the natural forest trees. The coffee trees usually grow to a height of about 10 feet (fig. 30). Loose, deep, and well-drained limestone clays and clay loams are best suited. Plants are usually grown in well-shaded plots, and when from 1 to 3 years old are transplanted. Several plants are set together in one clump and spaced in squares from 5 to 7 feet apart, or from 500 to 700 bushes per acre. Hoeing and chopping are required to keep down other vegetation, and the first crop is usually produced in about the fourth or fifth year. Trees usually continue to bear for 25 years or more. Trees bloom in the winter (December to May), and berries usually ripen in from 7 to 8 months. The harvesting season is usually from August to February, but the main crop is from October to December.

Harvesting consists of picking the individual berries by hand, an operation that requires a great deal of labor. In 1936–37 about 78,332 persons were employed to harvest the crop. Wages for picking are fixed at a definite ratio to the price of coffee [48] and in 1940 amounted to about 54 cents per 100 pounds of fresh berries, equivalent to nearly 3 cents per pound of finished, marketable coffee.

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[48] Picking wages are fixed at 2½ cents per 28-pound can for every dollar of price for cascara (dried coffee berries). At the price of 6 dollars, the rate is 15 cents per can.

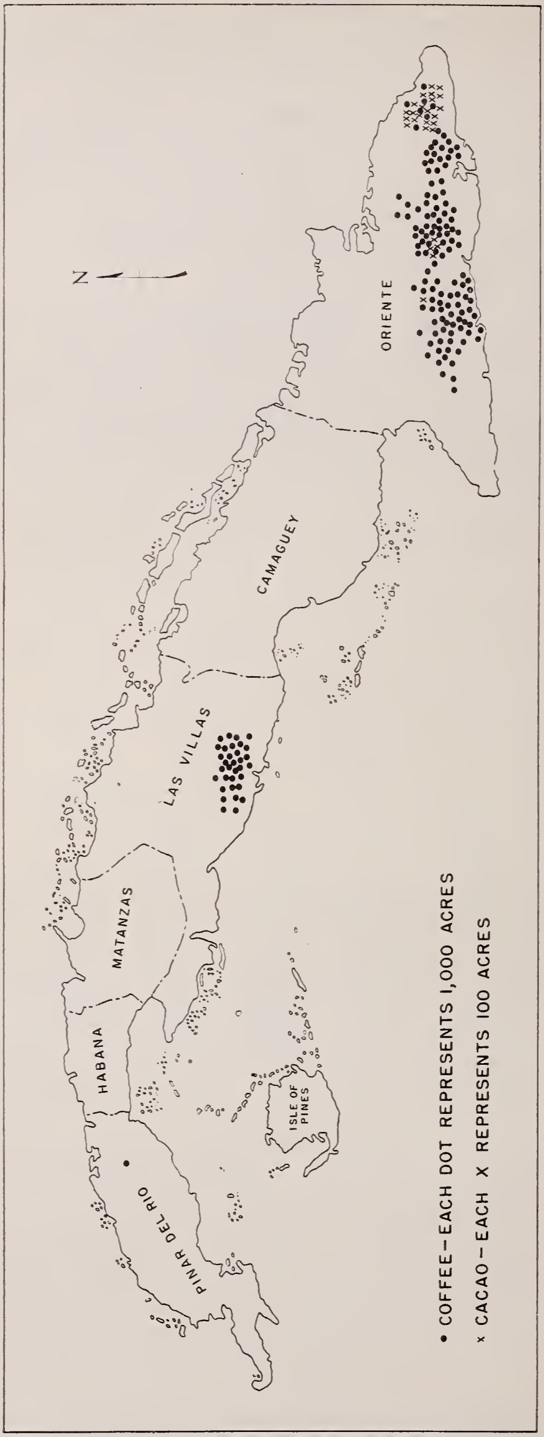
N
PINAR DEL RIO
HABANA
MATANZAS
LAS VILLAS
CAMAGUEY
ORIENTE
ISLE OF PINES
• COFFEE—EACH DOT REPRESENTS 1,000 ACRES
× CACAO—EACH X REPRESENTS 100 ACRES

Figure 29.—Coffee and cacao acreage in Cuba.

Yields usually average about one-half pound per tree (or clump of trees), or about 250 pounds per acre, of dry but unhulled coffee during the first years, but increase to about 500 pounds per acre as the trees mature.

The ripe berries picked from the trees are oval-shaped and nearly one-half inch long, red in color, later turning purplish-black. These berries contain the two halves of the coffee bean, surrounded by a fleshy pulp and outer skin. The pulp and skin must be removed and the coffee dried before it is finally ready for market. There are two processes of hulling or depulping the berries. The older process, known as the dry process, is still used on about two-thirds of the crop and consists of spreading the fresh berries on a large concrete or stone floor in the sun until the pulp partly decomposes and dries. In this state the coffee is known as cascara. This is then put into bags and transported to market and to hullers, who remove the dry hulls by machinery, thus producing the clean, green-colored, unroasted coffee of wholesale commerce, known as descascarado (shelled).

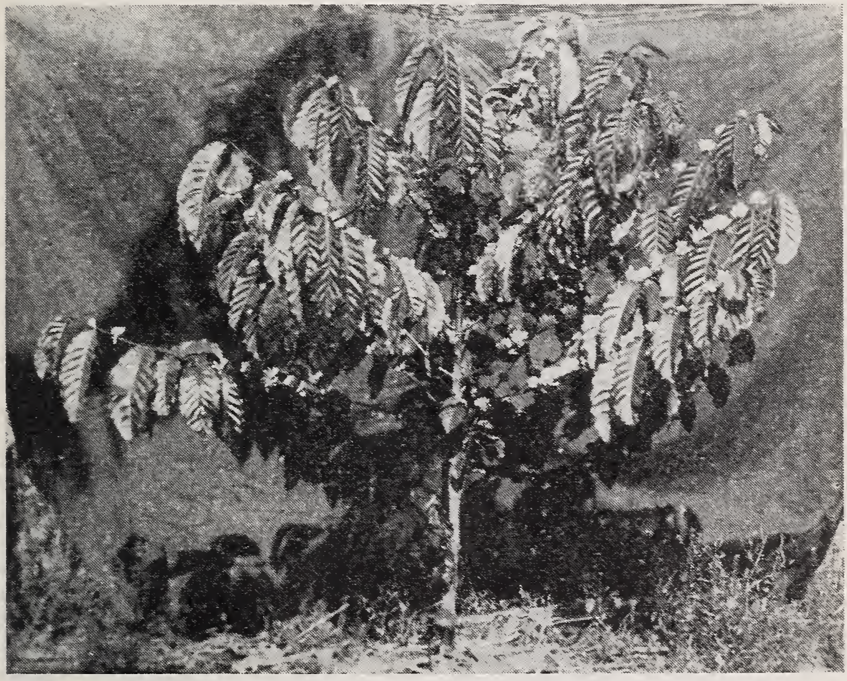

Figure 30.—A coffee tree in bloom.

The other and newer method used by the larger growers and the adjacent small growers is known as the wet method. The freshly picked coffee berries are washed in a large tank, which also removes inferior berries, and the pulp is then removed by machinery. The remaining coffee beans are then dried and finally cleaned, ready for market in the descascarado stage.

It is generally considered that about 5 pounds of fresh berries are required to produce 1 pound of finished, unroasted coffee. The exact yields vary with the regions and the method of handling. The following shows the equivalent quantities for the Oriente region (*3*).

100 pounds of fresh berries (cereza) produce 32 pounds of unhulled dry berries (cascara).
100 pounds of cascara produce 56 pounds of clean coffee (descascarada).
100 pounds of fresh berries therefore produce 17.9 pounds of clean coffee.

Transportation of coffee from the farms to the market is generally an expensive operation because the farms are usually located in inaccessible mountainous regions that have either no roads or very rough roads, passable only for carts and pack trains. Consequently, from 80 to 90 percent of the coffee marketed as cascara is transported by mule pack trains, and possibly 10 percent by carts. The average distance to market is about 20 miles, and according to the census made in 1936–37 the average cost of this transportation is about 42 cents per hundred pounds of cascara coffee.

At the local markets the unhulled coffee is sold to merchants and storekeepers, who hull and rebag it in bags of 132 pounds for sale to coffee wholesalers and roasters. For domestic consumption coffee is roasted very dark and finely pulverized for making drip coffee.

The Government gave the first real stimulus to revitalizing the Cuban coffee industry through increased import duties in 1927, followed by further increases in 1932. Duties on green coffee were increased from 10.6 cents in 1927 to between 14.5 and 29 cents per pound after 1932. On roast and ground coffee the increases were even greater. Another important Government measure was the formation of the Cuban Coffee Stabilization Institute [49] in the winter of 1934–35, which was further strengthened through reorganization and additional powers in 1936. The general plan for assistance to the coffee industry has been (1) to reduce imports through higher duties, (2) to fix minimum prices domestically, and (3) to provide for compulsory exportation of a specified percentage of the crop in order to prevent accumulation of surpluses.

A decree in August 1936 established a minimum price of $5 per hundred pounds for all unhulled (cascara) coffee, which in turn determined the prices for green berries on the one hand and for finished coffee on the other. In 1939 the fixed minimum price was raised to $6 per hundred pounds unhulled, with a minimum price of $2.10 for fresh berries and $13 for finished coffee. This price, plus the costs of merchandising and roasting and allowance for shrinkages, resulted in prices to retailers of from 28 to 31 cents per pound, and to consumers of from 30 to 40 cents for popular grades in 1940. Prices of surplus coffee for export are, of course, determined by the world market level, which for Cuban coffee has recently been from 4 to 5 cents a pound, c. i. f. New York. Consequently, growers' returns on the exported portion have been very low.

In order to provide an outlet for the disposition of surplus production and existing stocks, a decree in April 1936 provided that 30 percent of all production must be segregated and exported within 90 days. This was done for nearly 3 years, but when supplies were reduced and imports increased, the portion to be exported was reduced by law to 20 percent in July 1940 and further reduced to 10 percent in November 1940. It was felt that if a large proportion were made available to the domestic market, it would be consumed and would yield considerably increased return to growers. For the crop year 1941–42 and 1942–43 the proportion to be exported was fixed at 17½ percent.

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[49] The Institute is supported by a share of the Government taxes on coffee, including a general consumption tax of one-fourth cent a pound on raw coffee and an additional tax of one-fourth cent on roasted coffee. The remainder of the coffee taxes are used by the Ministry of Agriculture for the purpose of promoting the welfare of the coffee industry, construction of roads in the coffee districts, and coffee propaganda abroad.

In order to maintain the control over prices and movements of coffee, the Institute and the Ministry of Agriculture were charged with issuing permits for the movement to market of all coffee. Transportation of hulled and unhulled coffee from one Province to another and between producing districts was prohibited except under license.

These Government measures have been successful in increasing production, reducing imports, and increasing returns to growers, but they have resulted in high prices to Cuban consumers, who normally take more than three-fourths of the production. They have necessitated the disposition of the remainder of the crop by export at decidedly unprofitable prices. Under the Inter-American Coffee Agreement of 1940, Cuba was allocated a quota for export of 80,000 bags to the United States and 62,000 bags to other markets for the quota year beginning October 1940. This is equivalent to total exports of about 18.6 million pounds and is far in excess of the 10 percent now required to be exported under Cuban legislation.

It would appear that Cuba can, under governmental protection, readily supply domestic coffee requirements but is not in a position to compete effectively in the export market. Except for the fact that exports provide additional foreign exchange and constitute an outlet for surplus production, it is felt that the best interests of Cuban coffee growers would be served by stabilizing production at a level equal to domestic consumption and at the same time taking steps to improve quality.

CACAO

Cacao, from which cocoa and chocolate are made, is similar to coffee in some respects: namely, in that it is grown on small trees in the mountainous areas and that it requires considerable preparation on the farm after harvesting. It is now of relatively minor importance in Cuba. Its cultivation virtually ceased after the World War because of the great increase in sugar production and the increased production of cacao in other countries. It was partly revived in 1925 but has never regained its former position. Production since 1925 has never exceeded 10 million pounds a year, and in 1939–40 amounted to only 0.8 million pounds (table 42). One of the principal difficulties of cacao cultivation is that trees require from 4 to 7 years to begin bearing, whereas the Cuban farmer is usually financed on the basis of his crop and would therefore much rather produce a crop giving quick returns.

TABLE 42.—*Cacao acreage, production, and number of producing farms in Cuba 1928–29 to 1939–40*[1]

Year	Farms	Area harvested	Production	Yield
	Number	*Acres*	*1,000 pounds*	*Pounds*
1928–29	1,423	20,143	7,442	369.5
1931–32	924	9,340	2,684	287.4
1935–36	1,154	15,068	7,423	492.6
1937–38	152	4,096	823	200.9
1939–40	153	2,775	850	306.3

[1] Actual production is believed to be considerably larger than reported by these data.

Coffee and Cacao Office of Cuban Ministry of Agriculture.

Cacao is grown in Cuba in the hilly or mountainous sections of Oriente Province in the extreme eastern end of the island (fig. 29). It requires well-drained, sandy clay soils with humus and abundant rainfall. The crop is chiefly grown by small farmers, a few being independent owners but the majority being renters operating on a share-crop basis. Average acreage in cacao per grower was about 15 acres according to the census in 1936–37.

Cacao is endemic to tropical America. Three varieties are grown today: Calabacillo, a small-bean variety having a purple tinge and a very bitter taste; Forastero, a large, heavy dark bean, also having a bitter taste; and Criollo, the most valuable variety, with a lighter color, larger size, and sweeter taste, as well as a higher fat content than the other two varieties.

Seeds are planted in nurseries in November, and the seedlings are set out in April or May at the beginning of the rainy season. Banana plants are frequently used as shade. The flowers are small and yellowish and develop into fleshy yellow pods containing the seeds, or beans. These pods, however, are not permitted to develop until the tree is 3 or 4 years old. Some trees have been known to bear for 100 years. Trees are attacked by numerous parasites, but the witches'–broom disease, serious in some countries, has not yet attacked trees in Cuba.

The principal crop is harvested twice yearly, the first or fall harvest taking place during October and November and the spring harvest during April and May. Actual picking is done by the planter and his family on the small farms and by hired labor on the large plantations. After the picking, the pods containing the cacao beans are broken and the beans are removed and subjected to a sweating process and then dried in the sun. The dried beans are packed in burlap sacks, containing about 132 pounds, and are then ready for shipment to the market.

Most of the crop is marketed through local merchants, although some larger growers in the Santiago region truck their crops to Habana over the central highway. The chief market is Habana, which takes from 90 to 95 percent of the crop. Cacao is classified by quality into two grades; the better grade, called Hacienda, is known in the United States market as Fine Estates Fermented; the lower grade is called Corriente. Prices in 1932 were at the disastrously low level of 2 to 3 cents a pound but during recent years have increased, although not to the pre-World War levels of 9 to 11 cents a pound.

About 90 percent of production is consumed by local manufacturers and confectioners in Habana. Only surplus production is exported, varying from 2.4 million pounds, valued at $351,000 in 1927, to practically none in some years. Exports amounted to 0.1 million pounds valued at $28,000 in 1940 (table 43). Most of the exports are to the United States, where cacao enters duty-free; but on account of the small and uncertain quantities, manufacturers in the United States prefer more stable supplies than the Cuban cacao for blending.

The production of cacao tends to be dependent on the sugar situation. When sugar prices were exceptionally good, cacao production dropped, and when sugar prices were low, cacao production increased. Prior to the war of 1914–18, Cuban cacao production was large, reaching 10 to 15 million pounds in some years. In 1919, when sugar prices rose sharply, many cacao plantations were destroyed to make way for sugar; but in 1925 low sugar prices caused many farmers to harvest cacao again. The crop of 1926–27 amounted to almost 10 million pounds.

TABLE 43.—*Cacao exports and imports, Cuba, 1926–40*

Year	Exports				Imports	
	Total		To United States			
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
1926	2,017	213	1,964	206	(1)	(1)
1927	2,437	351	2,388	340	(1)	(1)
1928	117	17	117	17	13	3
1929	54	6	54	6	15	4
1930	1,845	112	1,739	107	8	2
1931	1,241	63	1,224	61	6	1
1932	1,230	46	946	36	2	(2)
1933	26	1	10	(2)	115	5
1934	5	(2)	5	(2)	17	2
1935	1	(2)	1	(2)	(2)	(2)
1936	8	1	5	1	15	1
1937	313	32	299	30	11	2
1938	0	0	0	0	(2)	(2)
1939	144	16	0	0	(2)	(2)
1940	238	28	0	0	(2)	(2)
1941	35	3	0	0	15	2

[1] Not separately reported.
[2] Less than 500.

Com. Exterior, Cuba Min. de Hacienda, Dir. Gen. de Estadís.

FIBER CROPS

Cuba's principal fiber crop is henequen. Although numerous other fiber plants grow in Cuba, their commercial production has not been profitable because of the low quality of the fiber obtainable or their unprofitable yields due to unsatisfactory climatic conditions or, most important of all, the high cost of removing the fiber. In most cases suitable decorticating machinery has not been developed, and under Cuba's relatively high wage scale the costs of hand decortication are too great compared with those in many other countries.

Cotton was grown in Cuba many years ago. During the United States Civil War production in Cuba expanded, but recently only a few farms have grown cotton. The total production of short-staple cotton now is estimated at about 150 bales, handled through one gin at San Antonio de los Baños. Results have not been very profitable, and production is not increasing. A little long-staple cotton, 20 to 30 bales, was grown on the Isle of Pines from 1938 to 1940, largely on an experimental basis. Because of unsatisfactory growing conditions, an uncertain market, and damage from the pink bollworm and the stain bug, it has been practically discontinued. A considerable cotton-textile industry has been developed in Cuba during the past 10 years: in 1939–40 it used about 14,000 bales of imported cotton, almost entirely from the United States.

Cuba's sugar industry and, to a lesser extent, the tobacco and coffee industries require vast quantities of heavy cloth bags and covering for bales. Most of these are imported jute or burlap bags, some are bags manufactured in Cuba from imported burlap, and some are cotton bags for refined sugar. Cuba's imports of jute bags and bagging during recent years have amounted to 45 to 50 million pounds, costing from 2 to 3 million dollars annually, in addition to imports of other kinds of bagging costing about 1 million dollars more. These imports alone cost Cuba about three times as much as the value of Cuba's exports of henequen fiber and products.

HENEQUEN

Henequen production in Cuba was small, estimated at less than 1 million pounds annually, until just before the first World War when it had increased to about 5 million pounds. Since then it expanded to an industry with exports valued at from 1 to 1.6 million dollars annually. The fiber is used primarily in the manufacture of binder twine, wrapping twines, and small rope.

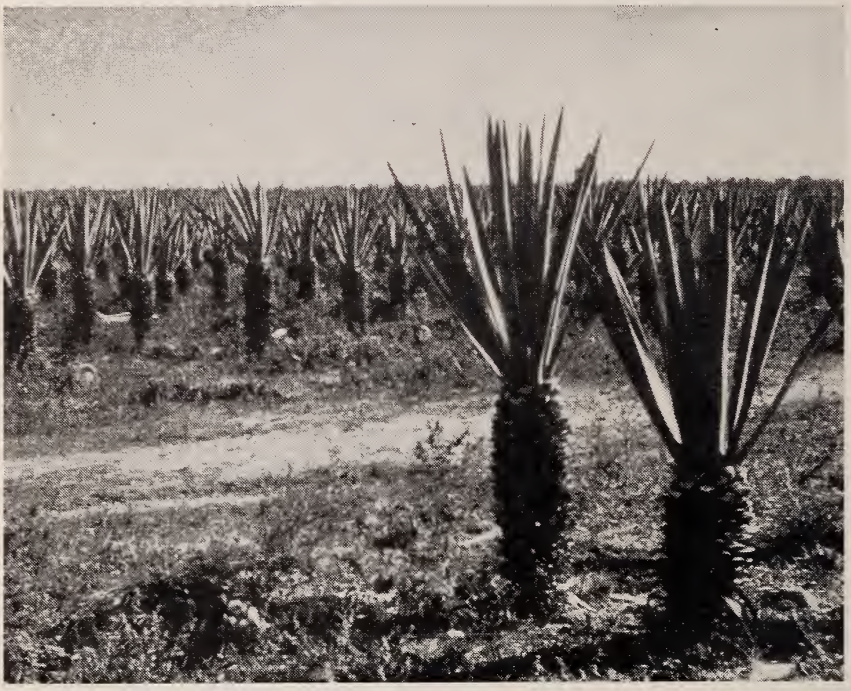

Figure 31.—A henequen field after semiannual harvest.

Henequen requires about 4 years after planting before the first crop is ready for harvest—then it is harvested once or twice a year for 10 to 15 years. It is planted 4 to 5 feet apart in rows 8 to 10 feet apart, or about 1,000 plants per acre. The plants consist of a short central trunk bearing numerous heavy, long, narrow spikelike leaves, which have spines along the edge and tip and when mature are from 3 to 4 feet long. Young leaves grow from the top of the trunk in a nearly vertical position (see fig. 31), but as they mature, the lower leaves assume a nearly horizontal position and are ready to be harvested. Harvesting consists of cutting each leaf off with a knife. The leaves are then hauled to a factory, where the green and pulpy material is removed from fibers through a decortication process. They are then washed, dried in the sun, and tied into bales of about 500 pounds, ready for market. Each plant yields about 30 leaves a year, the per-acre yield being about 1,300 to 1,800 pounds of fibers.

Henequen requires a well-drained limestone soil and dry weather for the manufacturing process. Production areas center around Matanzas, Cienfuegos, the north coast of Camagüey, and southwestern Oriente. Total production is estimated [50] at about 35 million pounds annually, most of which is produced in the Matanzas area. There are no accurate acreage data, but it is estimated that there are from 32,000 to 37,000 acres, including fields not yet in production. Most of the production is in the hands of large companies because of the cost involved in the manufacturing plants necessary to extract the fibers commercially. Some production is carried on by sugar centrals.

Exports of fiber and products during the 5 years 1936–40 varied from 20 to 34 million pounds annually, about two-thirds of which were in the form of raw fiber and about one-third in the form of manufactured twine, rope, and cordage (table 44). Most of the raw fiber and practically all of the manufactured products are shipped to the United States. The other principal market for raw fiber during this 5-year period was Germany. Domestic consumption of twine and rope made from henequen requires only a small part of the total crop.

Production in Cuba could be considerably expanded, but the long time required before the plants are ready for harvest, the relatively low world market price, and the required investment in manufacturing plants discourage rapid expansion of the industry and make it unattractive for small farmers. Prices as reflected by average export values were abnormally high at between 5 and 6 cents a pound in 1936 and 1937, but during the 3 years 1938–40 they averaged only 3.2 to 3.8 cents a pound.

TABLE 44.—*Henequen exports from Cuba, 1936–40*

QUANTITY

Year	Raw fiber				Manufactured twine, rope, and cordage			Total exports
	United States	Germany	Others	Total	United States	Others	Total	
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1936	12,569	8	233	12,810	5,911	251	6,162	18,972
1937	14,958	7,619	625	23,202	4,956	113	5,069	28,271
1938	8,179	10,005	119	18,303	5,759	48	5,807	24,110
1939	17,244	4,785	470	22,499	3,594	94	3,688	26,187
1940	25,582	0	1,008	26,590	7,388	86	7,474	34,064
1941	12,793	0	2,677	15,470	8,137	80	8,217	23,687
VALUE								
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1936	675	(1)	13	688	403	18	421	1,109
1937	798	439	32	1,269	344	9	353	1,622
1938	296	359	6	661	379	4	383	1,044
1939	571	153	15	739	195	8	203	942
1940	980	0	40	1,020	546	8	554	1,574
1941	536	0	95	631	557	5	562	1,193

[1] Less than 500.

Com. Exterior, Cuba. Min. de Hacienda, Dir. Gen. de Estadís.

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[50] HOOVER, JOHN P. PRODUCTION AND TRADE IN SISAL AND HENEQUEN IN CUBA. U. S. Cons. Rpt. 13654. 10 pp. June 6, 1941. [Mimeographed.]

CRAWFORD, WILLIAM A. THE PRODUCTION AND USE OF FIBROUS PLANTS IN CUBA. U. S. Cons. Rpt. 22904. 24 pp. Oct. 4, 1941. [Mimeographed.]

CROPS PRODUCED PRIMARILY FOR DOMESTIC CONSUMPTION

Climatic conditions in Cuba prevent the commercial production of the cereal grains common in the United States, such as wheat, barley, rye, and oats. Corn, some rice, and a little millet are the only grains grown in Cuba. Production of rice is small compared with the total requirements of about 475 million pounds. Imports of wheat, largely in the form of flour, amount to about 210 million pounds at a cost of from 4 to 6 million dollars annually. In addition, about 3 million pounds of other grains are imported, chiefly oats to be used as feed for army horses and barley for brewing. Some corn is imported, but exports usually exceed imports.

Beans and peas are an important item in the diet, and are extensively grown in Cuba, but production accounts for only about two-thirds of the requirements, necessitating importation of some 55 million pounds at a cost of nearly 2 million dollars a year.

Cuba also produces large quantities of root crops, including sweetpotatoes, yams, white potatoes, and two others largely unknown in the United States, namely yuca and malanga (table 45). In addition, plantains, that is, cooking bananas, must also be mentioned as an important item of domestically grown food. During recent years the production of peanuts for crushing, to replace imported vegetable oils, has also expanded rapidly. Together, the acreage devoted to these food crops, exclusive of plantains, accounts for about 20 percent of the total area of cultivated land.

TABLE 45.—*Estimated quantities of grains and other starchy crops used as food in Cuba, 1938*

Food	Quantity	Food	Quantity
	Million Pounds		*Million pounds*
Grains:			
Rice	475	Potatoes	150
Corn meal	260	Sweetpotatoes	340
Wheat flour [1]	210	Yams	60
Beans and peas	150	Yuca	360
Plantains (cooking bananas)[2]	575	Malanga	300

[1] Average imports 1936-40.

[2] Assuming an average weight of two-thirds pound each.

Vivó, Hugo (*19*).

CORN

Corn meal is an important item of food, and considerable quantities of corn are grown in all parts of the island. Yields are low, and relatively little is used for feed. It is estimated that at least 300,000 acres of corn are grown; and, with an estimated average yield of 15 bushels an acre, total production approximates 5 million bushels. Yields are estimated at from 8 to 30 bushels an acre, which, although low when compared with that in the Corn Belt of the United States, nevertheless are equal to and even somewhat higher than those in the Southern States.

All of the corn is of the hard, flint variety. It is grown on small farms either during the wet summer season or in winter. A large part of the crop is grown for sale as food in the towns, but there is usually a wide spread between the price received locally by the farmers at the time of harvest and the prices on urban markets several months later. Farmers usually receive from 40 cents to $1 per bushel shelled, but several months later prices in Habana are commonly $2 a bushel. One important factor contributing to this wide price spread is the difficulty of storing corn so as to prevent insect damage and the absence of such storage facilities on small farms.

Corn is at present not extensively used for feed, and it is problematical whether it can be produced at sufficiently low cost to justify its extensive use. On the export market, it must compete with cheap supplies from other corn-producing countries. Nevertheless, some feel that, with improved varieties, practices, equipment, marketing, and storage, production for consumption in Cuba could be expanded.

RICE

Rice is the most important grain consumed in Cuba, its consumption being considerably greater than that of corn meal and wheat flour combined. It is the basic item in the daily diet; and the national dish, "arroz con pollo," consists of rice cooked with chicken. The importance of rice in the Cuban diet is indicated by a consumption during the 6 years 1935–40 varying from 450 to 500 million pounds annually, amounting to about 110 pounds per capita compared with only about 6 pounds per capita in the United States.

Nearly all of this important commodity is imported (table 46). Domestic production has supplied only from 5 to 10 percent of the country's requirements, leaving the major part to be supplied by imports, which have ranged from 412 to 494 million pounds annually at a cost of from 7 to 10 million dollars (table 47). Until 1937 practically all of the imported rice was obtained from the Far East: Thailand (Siam), Burma, French Indochina, and India—countries which import very little of Cuban goods. Subsequently, more advantageous tariff rates on United States rice, rising prices in the Far East, and, more recently, the severely restricted shipping space as a result of the war have practically cut off imports from the Far East and have resulted in substantially increased imports from the United States—from an average of 20 million pounds annually prior to 1937 to 357 million pounds in 1941 (table 47).

TABLE 46.—*Rice production and imports, 1911–40*

Period	Quantity, cleaned-rice equivalent			Value of imports	
	Production [1]	Imports	Total utilization	Per pound	Total
	Million pounds	*Million pounds*	*Million pounds*	*Cents*	*1,000 dollars*
Average:					
1911–15	----------	274	----------	2.6	7,279
1916–20	----------	373	----------	6.8	25,314
1921–25	35	396	431	3.4	13,483
1926–30	27	469	496	3.3	15,024
1931–35	30	362	392	1.7	6,050
1936–40	30	445	475	2.0	9,048
Annual:					
1936	16	444	460	1.7	7,323
1937	18	494	514	2.0	9,960
1938	25	412	437	2.1	8,863
1939	37	444	481	2.1	9,184
1940	32	429	461	2.3	9,911
1941	42	398	440	3.6	14,270

[1] Estimated, including production not officially recorded.

Import data from official trade statistics.

TABLE 47.—*Rice imports into Cuba, by country of origin, 1926–41*

Period	United States	Thailand	India and Burma	French Indo-china	Others	Total
Average:	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
1926–30	21	16	335	3	94	469
1931–35	19	120	197	6	20	362
Annual:						
1936	11	357	49	22	5	444
1937	115	234	68	73	4	494
1938	199	169	13	30	1	412
1939	222	133	8	80	1	444
1940	256	129	18	24	2	429
1941 [1]	367	2	13	2	14	398

[1] Preliminary.

Official Cuban foreign-trade reports.

Rice is the largest single item (in value) of all Cuban imports and accounts for from one-fourth to one-third of all imports of agricultural products. During the 3 years 1938–40, the value of rice exports from the United States to Cuba considerably exceeded that of any other agricultural product. In 1937, 1938, and 1939 two-thirds of all United States rice exports were to Cuba, and in 1940 the proportion rose to 86 percent.

The Cuban Government relies heavily for revenue on import duties on rice. The general rate applicable to rice from Thailand is about 2.13 cents per pound, from other countries (except the United States) 1.68 cents, and from the United States 0.84 cent per pound as reduced under the trade agreement of 1934.[51]

Rice has long been grown in Cuba. Although there is no indication of the volume of early production, records indicate that it was grown commercially as early as 1861 and that with slave labor a considerable part of the country's requirements were produced domestically before the great expansion in the sugar industry. Production declined until some years ago, when renewed efforts were made to increase production in order to reduce the amount of foreign exchange expended for the importation of rice and also to provide profitable employment for some of the people unemployed as a result of the decline in the sugar industry. Furthermore, the work on the rice crop is from late spring to early fall during the dead season when sugar mills are not operating.

Until recently rice was produced by the most primitive methods. It is grown largely on small farms with an average of 6 to 8 acres of rice per farm. Most of the production has been without irrigation, though a few farmers irrigate. Rice is grown only in the wet summer season, after such crops as corn, beans, or peanuts in the winter. The ground is usually prepared by cross-plowing several times with old-fashioned plows and oxen. The field is then marked off, and rice is planted in furrows by hand, and the fields are hoed to remove weeds (fig. 32). Harvesting is also almost entirely by hand and consists of cutting the grain with a sickle, tying it into bundles, and putting it in shocks. Threshing is also done by hand or by percussion. This, in addition to requiring a large amount of labor, results in breaking many of the grains, thus producing an inferior product. Most of the crop is milled or hulled by means of the primitive pestle and mortar. Under these conditions, it is not surprising that production failed to increase as long as any alternative crops, such as sugarcane, could be grown.

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[51] In addition to the import duty, an excise tax of 10 cents per 100 kilograms (220 pounds) is imposed on all imported rice except that from the United States and Indochina. The revenue from this tax is used to promote domestic rice production.

In order to stimulate increased production, the Government undertook a program of increasing production by (1) improving the yields and quality through improved varieties; (2) reducing the cost of operation by making available better equipment, such as drills for planting, binders for harvesting, and threshers and mills; and (3) constructing irrigation projects primarily for rice. By all these measures the Government hopes eventually to increase production to a point where it will supply from one-fourth to one-half of the country's requirements. As early as 1927 the Government distributed small rice-hulling machines, and in 1928 began the free distribution of seed rice as an inducement to farmers. In addition, conferences and lectures were held to explain improved methods of rice production. During recent years this campaign has made steady progress, although production is still at a relatively low level, possibly equivalent to 42 million pounds of cleaned rice in 1941 (table 48). Nearly two-thirds of the total production is in the southern parts of the Provinces of La Habana and Matanzas.

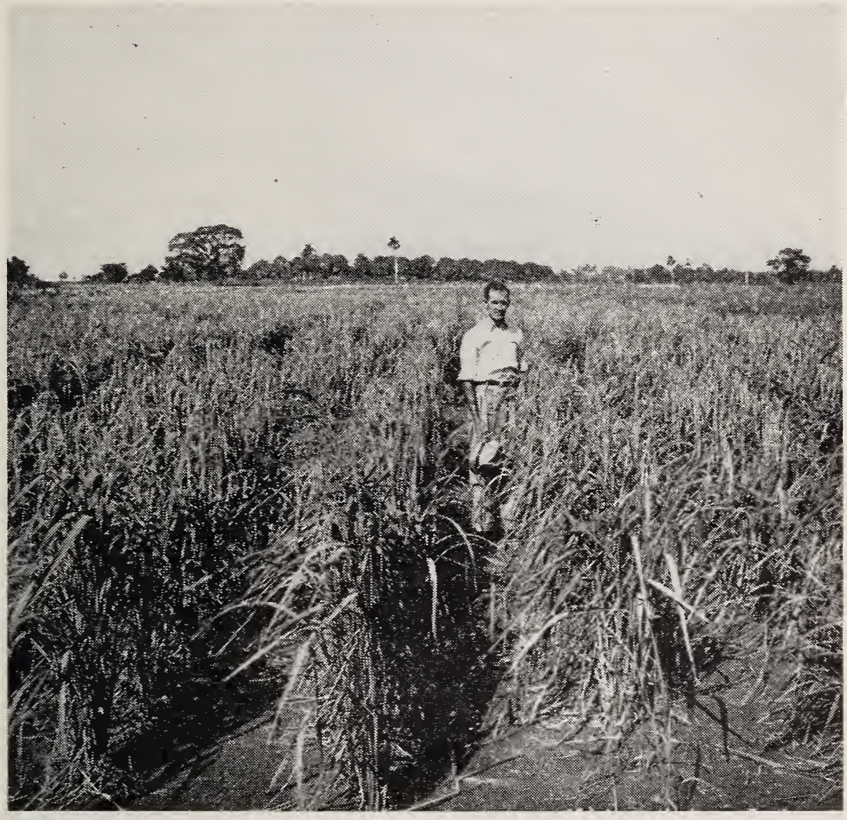

FIGURE 32.—A field of rice of the Fortuna variety.

TABLE 48.—*Rice growers, acreage, production, and yield in Cuba, by Provinces, 1939* [1]

Province	Growers	Area planted	Yield per acre	Production (unhulled)
	Number	*Acres*	*Pounds*	*1,000 pounds*
Pinar del Río	1,556	3,123	952	2,975
La Habana	989	7,356	1,519	11,177
Matanzas	719	7,514	1,455	10,934
Las Villas	1,080	3,571	1,041	3,718
Camagüey	347	3,707	526	1,951
Oriente	583	2,271	1,172	2,661
Total	5,274	27,542	1,213	38,416

[1] As officially reported. It is estimated that production may actually be as much as 50 percent greater than the data show.

Until recently a large number of varieties of rice were grown in Cuba and little attention was devoted to improving or standardizing them, but since 1928 the free distribution of seed of improved varieties selected by the Government has done much to improve the yield and quality. The improved varieties are Rexora, Fortuna, and Nira, of which the first is the most extensively planted. These varieties require nearly 6 months to mature—Rexora 165 to 175 days and Fortuna about 160 days. They are usually sown from March to May, although some of the other varieties are sown as late as June. It is reported that in April 1940 the Government distributed 370,000 pounds of rice seed and in 1942 nearly 1,500,000 pounds.

In 1927 the Government installed 39 small milling or hulling machines through sale to principal growers or groups of growers and more recently has assisted in installing several large mills, which operate on a custom basis, charging from 15 to 20 cents per hundred pounds of rice milled. It is estimated that there were in 1940 about 5 large mills having a capacity of about 2,000 pounds per hour and about 200 small mills of possibly 200 pounds per hour. Most of the crop, however, is still retained for use on the farms on which it is grown and only a minor part is marketed.

Most of the rice grown in Cuba is produced without irrigation, although yields could be greatly increased by irrigating. At present there are only a few rivers being used for irrigation, the most important being at Güines, in southern La Habana Province, where some 15,000 to 18,000 acres are irrigated by gravity flow. This project has been in operation for many years and is extensively used for rice as well as other crops.

With about three-fourths of the annual rainfall during the summer months, the moisture supply is usually sufficient to produce yields averaging slightly above 1,000 pounds per acre without irrigation, particularly in regions where the water table is relatively high, as in several coastal regions and on the lower land adjoining swamps. However, in some years the rainfall is deficient and crops fail; rice production as a result is relatively unprofitable over a period of years under the old, high-cost methods of production. With irrigation, rice yields may be approximately doubled; consequently, the Government has given much attention recently to the possibility of establishing a number of irrigation projects, intended primarily for the production of rice, although secondarily for other crops as well. In 1937 a survey was made of all rivers in Cuba to find the ones best suited for irrigation. Most of the rivers flow across the narrow part of the island and are short and small. They are fed primarily by current rainfall and do not provide sufficient water for large irrigation projects. Of the rivers examined, several of the most suitable have been chosen for the proposed construction. Climatic conditions in Cuba are somewhat similar to those in the Grand Prairie section of Arkansas, where irrigation is regularly used for rice.

Before the war growers usually received from 1.5 to 2.2 cents a pound for unhulled rice at the nearest mill. This is slightly higher than the prices received by growers in the United States, which were 1.43 in 1938 and 1.72 in 1939. A price of 2 cents to growers, in addition to the cost of transportation, 15 cents per 100 pounds for milling, 10 cents for bags, and the loss in weight in milling amounting to about 35 percent, resulted in a price of about $3.20 to $3.40 for cleaned rice.

BEANS

Beans are a very important item in the Cuban diet, especially for the poorer people. Total consumption of beans and chickpeas (garbanzos) is estimated at 150 million pounds a year, or about 35 pounds per capita, as compared with only about 12 pounds per capita in the United States. Nearly half of the consumption consists of black beans, about one-fourth of red and pink kidney beans, and the remaining fourth primarily of about equal quantities of white or navy beans and chickpeas. In addition, about 6 million pounds of dry peas are imported.

Of a total estimated consumption of 150 million pounds of beans and peas, Cuba produces about two-thirds and imports about one-third, but these proportions vary widely with the different types of beans (table 49).

TABLE 49.—*Bean and pea production (estimated), imports, and utilization in Cuba, average 1936–40*

Kind	Production	Imports	Utilization
	Million pounds	*Million pounds*	*Million pounds*
Beans:			
Black	70	(1)	70
Red and pink	19	16	35
White, etc	6	16	22
Total beans	95	32	127
Chickpeas	(1)	17	17
Peas	(1)	6	6
Total beans and peas	95	55	150

[1] Small quantities.

It will be noted that black beans, which account for nearly one-half the total consumption, are grown almost entirely in Cuba, whereas domestic production of red and pink beans constitutes less than one-half the requirements of these types. Most of the white beans and practically all the chickpeas are imported. Imports of all kinds of beans, including chickpeas, are valued at from 1.5 to 2 million dollars annually (table 50). By far the greater part of the imports, both of the red and white beans, are from Chile, with the United States supplying slightly over one-fourth. Of the chickpeas, nearly 90 percent are obtained from Mexico and most of the remainder from the United States.

It is estimated that production in Cuba from about 100,000 acres is in the neighborhood of 100 million pounds annually, of which over 70 percent are black beans and most of the remainder red and pink. Yields of black beans are estimated at 900 pounds an acre, compared with about 750 pounds for the red beans. Storage of dry beans in Cuba, particularly of the red variety, is difficult, because of infestation by the bean weevil. Consequently, it is difficult to keep beans on the farms, which usually have no suitable storage facilities. The crop is usually marketed immediately after harvest and sold through the local storekeeper, who cleans and bags the beans for sale to larger markets having suitable storage facilities. Beans may be protected against insect damage by fumigation, which, however, according to some reports, adversely affects the quality of the beans. Another method of preservation is by cold storage.

Table 50.—*Beans and peas imported into Cuba, by country of origin, 1936–40*

Kind and source	1936		1937		1938		1939		1940	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
Red beans:										
United States	3,406	95	3,752	138	1,481	52	8,307	287	4,860	184
Chile	13,898	276	8,887	317	14,513	297	3,433	97	6,808	202
Others	2,487	56	3,781	105	406	10	28	(1)	88	2
Total	19,791	427	16,420	560	16,400	359	11,768	384	11,756	388
White beans:										
United States	1,506	42	1,528	49	4,491	136	12,544	426	16,036	539
Chile	14,270	279	12,771	376	10,994	307	505	18	564	19
Others	2,441	62	820	29	520	18	666	22	67	2
Total	18,217	383	15,119	454	16,005	461	13,715	466	16,667	560
Other beans:										
United States	68	4	373	17	961	44	378	15	322	16
Chile	287	11	276	10	227	8	29	1	388	14
Others	232	9	188	8	187	7	154	5	37	1
Total	587	24	837	35	1,375	59	561	21	747	31
Chickpeas:										
United States	2,207	106	1,975	116	1,812	106	1,949	100	1,845	91
Mexico	15,110	641	18,527	919	8,935	437	13,788	695	13,836	651
Others	589	16	1,908	89	285	13	187	8	1,292	44
Total	17,906	763	22,410	1,124	11,032	556	15,924	803	16,973	786
Peas:										
United States	3,852	96	6,985	178	8,223	168	6,618	173	2,178	102
Others	391	10	19	(1)	20	(1)	409	20	4	(1)
Total	4,243	106	7,004	178	8,243	168	7,027	193	2,182	102
Total beans and peas:										
United States	11,039	343	14,593	498	16,968	505	29,796	1,001	25,241	932
Chile	29,044	583	22,783	739	25,859	613	4,111	120	7,760	235
Mexico	17,088	683	19,737	950	8,946	437	14,244	717	13,858	651
Others	3,573	84	4,677	163	1,282	49	844	27	1,468	49
Total	60,744	1,693	61,790	2,350	53,055	1,604	48,995	1,865	48,327	1,867

[1] Less than 500.

ROOT CROPS

POTATOES

Potatoes, sweetpotatoes, and yams are all grown in Cuba, but sweetpotatoes are by far the most important of these (fig. 33). Consumption of potatoes as food is estimated at about 150 million pounds annually; of sweetpotatoes, 340 million; and of yams, 61 million (*19*).

Only about 100 million pounds of potatoes, or about two-thirds of the country's requirements, are produced domestically. During the 5 years 1936–40, the annual average imports amounted to 42 million pounds from the United States for use as food, and about 23 million pounds from Canada for seed (table 51). Exports usually consist of less than 1 million pounds (4 million in 1940) of early potatoes shipped to the United States during the winter from December to April.

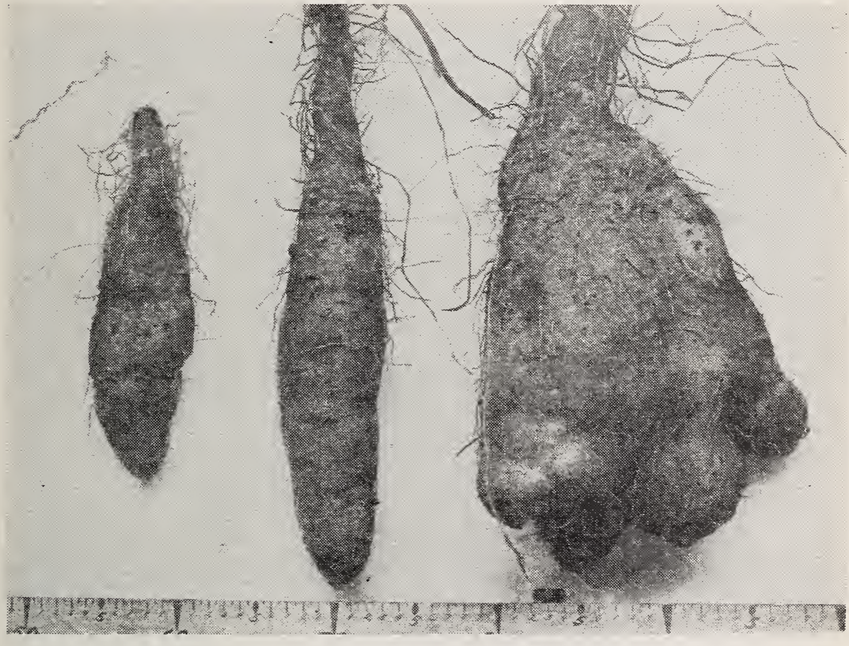

FIGURE 33.—Yams and sweetpotatoes are staple items of food in Cuba.

TABLE 51.—*Potato imports and exports, Cuba, 1936–40*

Year	Imported [1]				Exported [2]	
	For seed		For food		Quantity	Value
	Quantity	Value	Quantity	Value		
	Million pounds	*1,000 dollars*	*Million pounds*	*1,000 dollars*	*Million pounds*	*1,000 dollars*
1936	22.9	492	40.8	704	2.7	51
1937	23.5	428	43.0	389	1.5	29
1938	26.2	326	61.2	590	1.9	29
1939	24.0	359	37.8	528	.3	5
1940	16.4	213	29.2	262	4.1	78
1941	29.6	441	44.3	597	.2	5

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[1] Imports for seed are about 95 percent from Canada and those for food almost entirely from the United States.

[2] Exports are about 98 percent to the United States.

Domestic production of potatoes is during the winter, with plantings of red varieties in October and November and white varieties as late as January and February. The principal harvest is therefore in winter and spring. During this period from November to June, imports of potatoes into Cuba are subject to a duty of $1.81 per hundred pounds, or, because of the 20-percent preference, $1.45 to the United States. During the off season for domestic production, that is, July to October, the import duty is reduced to 91 cents per hundred pounds, or, because of the 50-percent preference, 45½ cents to the United States. Imports for food are almost entirely during this summer, reduced-duty period.

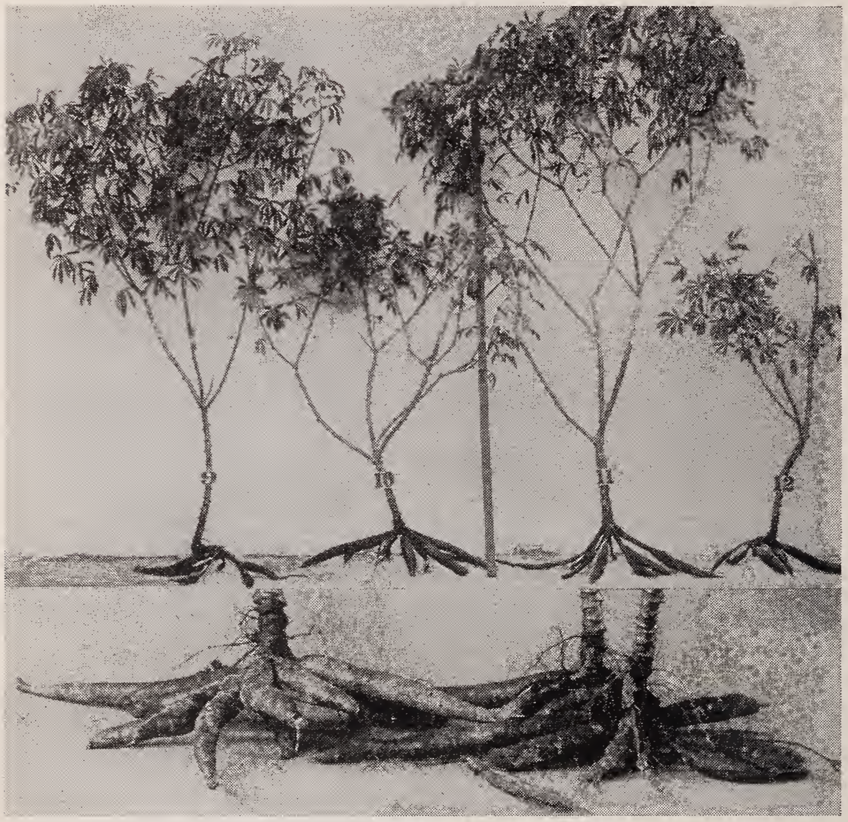

FIGURE 34.—Yuca is used both for food like potatoes and for the manufacture of cassava or tapioca starch.

YUCA (CASSAVA OR MANDIOCA)

Yuca, an important root crop, is grown both for food like potatoes and for the manufacture of cassava or tapioca starch. The stalks of the yuca plant above ground are slender, with numerous branches and leaves at the top. It grows to a height of from 5 to 10 feet. The roots, or tubers, are similar in shape to long sweetpotatoes, but are usually much larger (fig. 34). Two distinctly different kinds of yuca are grown, one for cooking and one for starch. The total acreage in all kinds of yuca is estimated at between 50,000 and 60,000 acres, of which about 90 percent is of the sweet, or cooking, kind and roughly 10 percent is of the kind used for starch.

The small sweet, or white, kind contains very little hydrocyanic acid and is commonly used for eating. When cooked it consists of long, white pieces of almost pure starch. The roots are smaller and the yields lower, probably from 3,000 to 5,000 pounds per acre. It matures earlier, in from 10 to 12 months. The importance of yuca as food is indicated by the fact that human consumption is estimated at 360 million pounds, compared with only 150 million pounds of potatoes and 340 million pounds of sweetpotatoes.

The large bitter, or black, yuca used for the manufacture of starch has a higher hydrocyanic acid content, matures later, in from 15 to 18 months, and produces higher yields. Yields vary from 6,000 to 20,000 pounds per acre and probably average about 8,000 pounds.

Yuca grows best on sandy, or loose, well-drained soil. It is commonly planted in rows about 3 or 4 feet apart at the beginning of the wet summer season in June. The kinds used for starch require about 18 months to mature and are ready for harvest during the dry winter season from November to April, when the tubers are gathered and hauled to the local starch factory. Prices received by growers for the roots vary widely from 25 to as high as 60 cents per hundred pounds and over a period of years probably average from 30 to 40 cents.

It is reported that there are between 30 and 50 small yuca starch factories in Cuba, but not all of these are in operation. These factories are of the old type and produce a relatively low-grade starch used almost entirely in Cuba. Due to the limited harvesting season and the fact that yuca cannot be stored after harvest, factories can operate only during the winter. Total starch production in Cuba is estimated at about 5 million pounds annually, although the actual plant capacity is considerably in excess of this figure.

The process of manufacturing starch consists of washing the roots and removing the brown outer skin, then grinding the roots into pulp and washing the starch out with water. The resulting fluid is allowed to settle in large tanks, the water is drained off, and the wet starch is shoveled onto trays to be dried in the sun, after which it is pulverized and bagged. Starch yields vary from 25 to 28 percent of the weight of the yuca. Prices vary widely, from $1.50 for the relatively low-grade starch for domestic consumption to nearly $5 per hundred pounds.

As early as December 1930 a law was passed providing for the compulsory addition of a specified percentage of yuca starch or flour in all bread and crackers made in Cuba. This requirement became effective in July 1932 but its operation proved to be unsatisfactory and it was abandoned. More recently there has been renewed interest in the manufacture of higher grade starch for export to the United States. It is believed that introduction of improved, higher yielding varieties of yuca and improvement in the manufacturing process would permit the economical preparation of a higher grade starch capable of competing on the United States market with the large quantities of yuca or cassava starch imported from the Far East. For a number of years Cuba has exported from 100,000 to 400,000 pounds of starch to the United States, but in 1940 exports increased to nearly 1 million pounds, with a value of approximately $25,000.

MALANGA

Malanga is also an important food crop in Cuba, with an area of 50,000 to 60,000 acres and a total consumption estimated at 300 million pounds annually. Malanga is a corm or bulblike plant, known in the United States as the ornamental elephant's-ear. It has very large leaves borne on stems sprouting directly from the bulb or crown (fig. 35). In Cuba it is planted in gardens and fields, and, when mature, the bulbs are harvested and cooked like potatoes. The flesh is white when cooked, sometimes with a purplish border; and, like potatoes and yuca, it contains a very high proportion of starch.

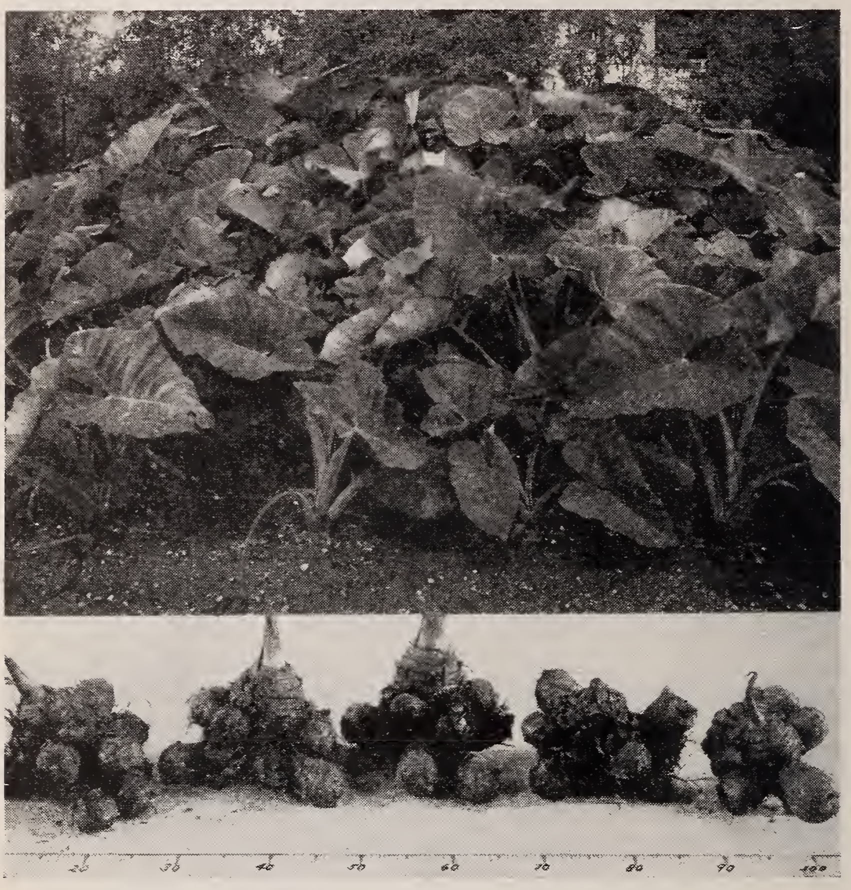

Figure 35.—Malanga is used for food, cooked like potatoes.

Vegetable Oils

Until the last several years Cuba produced very little of its requirements of vegetable oil. Imports during the 5 years 1936–40 averaged 47 million pounds annually in addition to large imports of lard and some other animal fats. Olive oil for cooking was the most important imported vegetable oil for many years until the war in Spain reduced the supply and forced substitution. This also encouraged domestic production.

Vegetable-oil production in Cuba has had an interesting development. As early as 1927 experimental production of sunflower seed for oil was begun, and by 1933 its production had reached 5.5 million pounds of oil. However, from 1934 to 1937 the domestic industry was practically stopped as a result of heavy imports of cheaper oil from Japan under a reduced import duty. In 1937 the import duty that had worked to Japan's advantage was increased, and domestic production started again—but this time it was from peanuts rather than sunflower seeds.

Peanut-oil production increased rapidly from 1.2 million pounds in 1937 to between 10 and 15 million pounds in 1940 and 1941, having a value well in excess of 1 million dollars in the latter year. Plantings in 1940 were estimated at about 65,000 to 80,000 acres, with a production of 40 to 65 million pounds of peanuts. Peanuts are usually planted in April or May and harvested about 95 days later. Yields average 800 pounds per acre. The farm price is usually about $2.10 to $2.25 per hundred pounds, f. o. b. railway, but in April 1942 the price was fixed at $3.40 when delivered to the railway in quantities of not less than 30,000 pounds. Peanut-oil production in 1941 was equal to nearly 30 percent of Cuba's total vegetable-oil requirements. It will probably continue to increase and to replace more of the imported edible oils, but will probably not be able to replace certain of the inedible oils used for special purposes. Other potential sources of edible vegetable oil are soybeans and the African oil palm, although there is no commercial production of either at the present time.

Certain varieties of castor-beans appear to grow wild in Cuba, but these have no commercial value. Other varieties have been grown commercially on a small scale for several years, but the industry is still in an experimental stage. Present plantings in Cuba are variously estimated at from 500 to 1,000 acres. Only a small part is regularly harvested. Marketing facilities are poor, and consequently the growers have not been assured of an outlet for their crop at a reasonable price. The large white variety is most commonly grown (fig. 36). The crop is usually ready for harvest in 6 to 9 months after planting and again every 3 months thereafter for several years without replanting. There are no exact data as to yields, which are reported to vary widely and average nearly 1 ton per acre annually.

Nearly all of Cuba's castor-oil requirements, averaging about 350,000 pounds annually with a value of about $25,000, are imported. The oil is used largely for lubrication in the sugar mills, for the manufacture of paints, and for medicinal purposes. Since 1937 a castor-bean crushing factory has been in operation sporadically, but this plant supplies only a small part of Cuba's requirements. With further experimentation in castor-bean production, the establishment of permanent marketing channels, and improvement in facilities for crushing, Cuba would at least be able to supply all of its domestic requirements of castor oil. This would require possibly 350 acres of castor-beans having a 50-percent oil content.

Production of castor-beans might be developed on an export basis, but this development would depend upon improvement in production

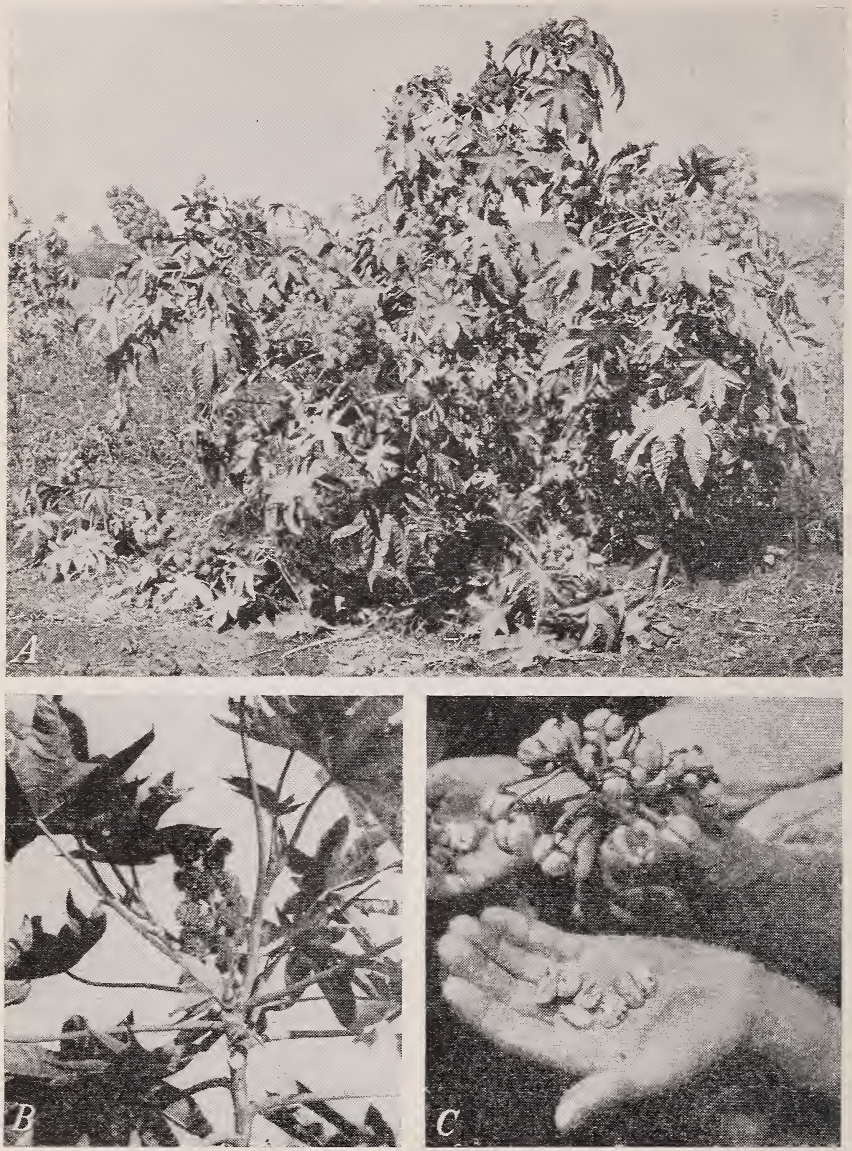

FIGURE 36.—Some castor-beans are grown on a commercial scale. *A*, Castor-oil plant; *B*, spiny capsules of the castor-bean; *C*, mature capsules and castor-beans.

and marketing and more especially upon whether the beans can be grown profitably at prices that normally prevail on the export market. The United States requires large quantities of castor-beans. Imports averaging 170 million pounds in the 5 years 1936–40 have been almost entirely from Brazil. The average price of castor-beans delivered in New York (exclusive of duty) during the past 5 years varied from 1.45 cents to 2.5 cents per pound, or an average of about $46 per long ton.[52]

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[52] At one time in 1940, because of war conditions, New York prices rose to 4.5 cents a pound, and during the first half of 1942 were 4.5 cents.

LIVESTOCK PRODUCTION

Cuba's climate permits pasturing during all seasons of the year. This provides cheap feed, particularly for cattle, which are by far the most important kind of livestock. Large sections of the east-central part of the island consist of relatively poor land, suitable only for grazing. Large cattle ranches similar to those in the western part of the United States exist in these areas. Very little grain, hay, or any kind of feed other than pasture is fed to livestock in Cuba.

Remarkable development during the past decade or so has taken place in the cattle industry. Government aid, protective tariffs, improved breeding stock, and modern packing plants have transformed Cuba from a heavy importer of meat and dairy products to a position of self-sufficiency and even to a net exporter of beef and dairy products.

Although Cuba is not well adapted for hog production, this industry has also increased in the past 10 years to the extent of supplying most of the domestic demands for pork products, large quantities of which were formerly imported. Sheep are not important, but poultry production fully supplies domestic requirements. Hides and skins are an important item of export. The total value of exports of all kinds of meat, dairy products, hides, and skins was 2.6 million dollars in 1940, and will be considerably greater in 1941.

The approximate numbers of the various kinds of livestock in Cuba are shown in table 52. These data are not necessarily accurate but serve to show the relative importance of the different kinds of livestock.

TABLE 52.—*Livestock numbers in Cuba in years specified* [1]

Year	Horses	Mules	Donkeys	Cattle	Hogs	Sheep	Goats	Poultry
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1915	[2] 625	[2] 46	[2] 3	3, 704				
1920	841	71	3	4, 593				
1925	685	72	3	4, 512				
1930	635	90	3	4, 991	650	112	37	8, 563
1935	599	80	3	4, 651	[3] 952	[3] 164	[3] 54	[3] 12, 540
1940 [4]	391	33	5	5, 335	857	141		

[1] Although the census is compiled from information obtained directly from the municipalities throughout the island, which keep registrations of livestock, there are many thousands of animals unregistered because of the negligence of owners. Furthermore, the censuses for the various yrars were not always taken in the same manner and therefore do not accurately reflect changes.

[2] Year 1913.

[3] Year 1934.

[4] Preliminary.

WORK ANIMALS

OXEN

Practically all fieldwork and farm hauling is done by oxen. In 1940 there were 408,000 in Cuba, or about the same as the total number of horses. The sugar industry particularly depends upon oxen to move the entire cane crop from the fields to the railways or mills. For this work, six to eight oxen are usually hitched to a large, heavy two-wheeled cart. Oxen are well adapted to the heavy work and to the warm climate. Furthermore, they subsist almost entirely on pasture except during the cane-harvesting season, when they eat the cane tops and leaves left in the field.

HORSES, MULES, AND DONKEYS

Horses as a rule are used only for riding and provide the principal method of human transportation in rural areas where small farmers cannot afford more expensive transportation and where earth roads do not permit the use of automobiles or small-wheeled wagons during much of the year. Nearly every farmer has a horse or a mule to ride and to carry produce and groceries. They are used only occasionally for hauling. Horse breeding is not well organized. The native horses, although smaller than those in the United States, are hardy, gentle, easily supported, and, when crossed with good American stallions, produce excellent service animals.

Mules are used occasionally for light farm work, for hauling in towns, for riding, and especially for pack work. Donkeys are also used some for hauling, but particularly for pack trains in mountainous regions.

Meat Production

Cuba is now on a net-export basis for meat. At least three-fourths of Cuba's meat requirements, other than poultry, are supplied by beef and veal and about one-fourth by pork. The warm climate and the extensive natural pastures are excellent for cattle production but are not well adapted for the production of hogs. Consequently Cuba has a relatively larger number of cattle and a smaller number of hogs than does the United States—about 1.2 cattle per capita compared with about 0.5 in the United States and about 0.2 hog per capita compared with about 0.4 in the United States.

Productivity of livestock in Cuba is considerably lower than in the United States, particularly because breeds are not highly productive and because the animals are pasture-fed and not fattened. Total meat consumption is relatively low, estimated at about 50 to 60 pounds per capita compared with about 130 pounds in the United States. The warm climate and the low purchasing power contribute to the low meat consumption.

Cuba's meat industry, particularly the cattle industry, has developed tremendously during the past 15 years. From 1920 to about 1925, nearly 100 million pounds of meat were imported annually. Most of this consisted of jerked beef and salt pork. Since then Government protection in the form of higher tariffs and other measures, together with the necessity of conserving foreign exchange and finding alternative employment for those unemployed because of the decline in the sugar industry, has resulted in the development of the livestock industry to a point where meat was on a net-export basis for the first time in 1940. Beef is now exported, and pork imports have declined to only about 4 million pounds, compared with former imports of 40 to 65 million (see table 53). Cuba now has three large packing plants in Habana in addition to numerous small slaughter houses.

TABLE 53.—*Meat and lard imports and exports, Cuba, 1921–40*

Year	Imports										Exports		
	Beef		Pork				Mutton	Canned and other meats	Total meat	Lard	Meats, prepared	Beef, fresh	Cattle, live
	Fresh [1]	Prepared [2]	Fresh [1]	Salted	Ham	Bacon [3]							
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Number*
1921	468	32, 809	871	30, 066	6, 494	7, 847	224	6, 738	85, 517	88, 407	0	0	0
1922	309	45, 212	2, 785	33, 181	4, 288	144	29	3, 948	89, 896	90, 481	0	0	6, 190
1923	574	51, 740	1, 851	40, 551	6, 710	37	226	7, 670	109, 359	96, 740	0	0	61
1924	301	51, 740	2, 338	54, 054	8, 530	61	57	10, 109	127, 190	105, 037	0	0	0
1925	500	45, 875	1, 858	38, 561	6, 419	65	31	9, 691	103, 000	92, 303	0	0	11
1926	347	39, 151	2, 248	35, 153	3, 724	66	82	8, 923	89, 694	89, 725	0	0	85
1927	410	40, 198	1, 694	34, 892	3, 823	674	98	8, 970	90, 759	87, 752	0	0	25
1928	197	27, 978	1, 480	14, 035	3, 676	20, 605	59	2, 415	70, 445	86, 704	101	0	42
1929	115	19, 940	1, 697	15, 883	2, 655	19, 879	85	1, 448	61, 702	83, 206	1, 562	0	3, 904
1930	55	12, 719	1, 059	11, 260	1, 538	16, 876	86	1, 132	44, 725	69, 035	2, 076	0	2, 015
1931	43	3, 996	209	7, 607	675	10, 035	54	276	22, 895	45, 178	222	0	1, 692
1932	14	116	51	5, 307	385	7, 196	28	130	13, 227	21, 876	216	0	3, 722
1933	16	1	29	2, 930	330	4, 519	22	72	7, 919	9, 874	0	0	36
1934	3	(4)	48	4, 130	339	5, 767	10	67	10, 364	23, 735	4	0	72
1935	5	2	23	3, 885	547	4, 255	10	106	8, 833	24, 356	82	0	32
1936	13	66	48	3, 142	428	2, 535	12	98	6, 342	28, 547	0	8	29
1937	80	1	44	2, 820	419	1, 847	20	111	5, 342	41, 131	3	264	43
1938	11	26	243	3, 175	353	2, 078	19	94	5, 999	45, 900	12	14	48
1939	15	43	(4)	2, 966	208	1, 325	22	69	4, 648	53, 469	14	478	1, 415
1940	22	0	0	3, 073	234	1, 778	18	82	4, 104	66, 332	573	11, 671	5, 934
1941	10	0	0	2, 096	180	1, 017	21	91	3, 415	65, 605	1, 465	42, 974	9, 974

[1] Includes fresh, chilled, and frozen.

[2] Principally jerked beef.

[3] Includes salted and smoked.

[4] Less than 500 pounds.

Official foreign trade statistics.

CATTLE

Prior to 1895, cattle production was a thriving industry, with more than 3 million head and regular exports of live cattle to neighboring islands. The Cuban War of Independence, however, was almost fatal to the industry. From 1895 to 1898 about three-fourths of the cattle disappeared, leaving less than 700,000 head. During the American occupation of the island beginning in 1898, the shortage of beef was so severe that stock had to be imported from the United States and Venezuela, but by 1910 the number of cattle in Cuba had again been built up to about 3.2 million and, according to census data, reached about 5 million in 1923. Census data show that numbers declined somewhat after that date but reached 5.3 million in 1940 (fig. 37). There are reasons to believe, however, as indicated by the sharp decline in imports, that the number of cattle in Cuba has actually increased.

Soon after the World War Cuba began to export cattle, as many as 10,000 a year, but when importing countries raised tariff rates this trade was curtailed, and Cuban producers were forced to rely on the local market. A packing industry was developed, and in 1927 Cuba raised its import duties on meat, giving further stimulus to the industry. Consequently, imports, almost entirely in the form of jerked beef, declined from a former level of 45 million pounds a year to practically none after 1932. Exports of fresh beef, which were begun on a small scale in 1936, reached 12 million pounds in 1940 and 42.5 million pounds in 1941.

Cuban cattle are of mixed breeds, consisting principally of the old native breed crossed with the Zebu, or Brahman (fig. 38), from India, to increase the hardiness and resistance to pests and diseases. Improved breeds, such as Shorthorn, Hereford, Aberdeen Angus, Holstein, and Brown Swiss, have also been introduced, but the wide influence of the Zebu is most readily apparent. Breeding stock from the United States frequently dies when introduced into Cuba unless it is immunized and acclimated. Several factors have been responsible for the development of the present type of cattle. The domestic market prefers lean meat rather than the marbled beef preferred in the United States. The cattle must be hardy, immune to tick fever, and adaptable to living in the subtropical climate and to existing entirely on a range pasture. Furthermore, the type must be suitable to supply oxen for farm draft work.

The cattle industry is principally in the central and eastern part of the island, the three eastern Provinces having three-fourths of the total number. Camagüey and the adjacent part of Oriente have large areas of relatively poor land unsuitable for cultivation but providing extensive grazing the year round, although pastures run short during the dry winter season. Many cattle are also pastured in the hilly and mountain regions. The most common grass in the plains region is Paraná (Pará), but guinea grass is also widely distributed.

It is estimated that about one-half of the cattle are produced on large ranches and about one-half by small farmers. The cattle are usually sold for slaughter direct from pasture, without any fattening and without receiving any grain or other feed. Cattle prices are too low to permit the purchase or importation of expensive feeds. Cuba produces no feed grain except corn, and only enough of that for human consumption and some for hog feeding. Relatively large quantities

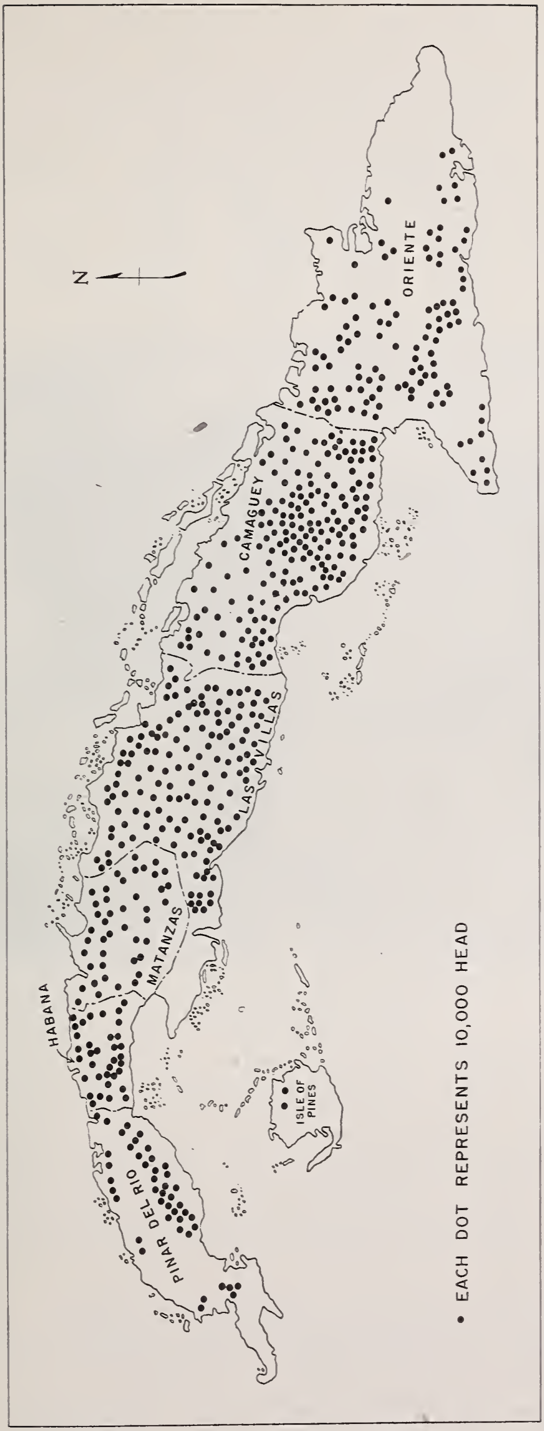

FIGURE 37.—Distribution of cattle in Cuba, 1940.

of molasses and some peanut meal could be used for feed if the price of cattle justified their use.

The number of cattle slaughtered annually, as recorded by official Government statistics, is about 475,000 head (table 54), but a considerable number in addition are probably slaughtered on farms and in local communities, so that the total slaughter, including that for export, may be between 600,000 and 750,000 head. Animals are usually slaughtered at a weight of near 1,000 pounds and produce dressed carcasses weighing about 580 pounds.

Prices of live cattle at the central markets in Habana vary from about 2.5 to 4.5 cents a pound,[53] but at times have varied more widely. Freight costs from the eastern producing areas to Habana are from one-third to one-half cent a pound. Prices for beef have been controlled by the Government since 1935. In 1941 the maximum wholesale price of beef was fixed at 6.35 cents a pound, and in February 1942 at 7.25 cents a pound. The maximum retail prices according to quality vary from 6 cents for third-grade to 10 cents (11 cents in 1942) for second-grade and 14 cents (16 cents in 1942) for first-grade. These maximum retail prices apply to all cuts except fillet.

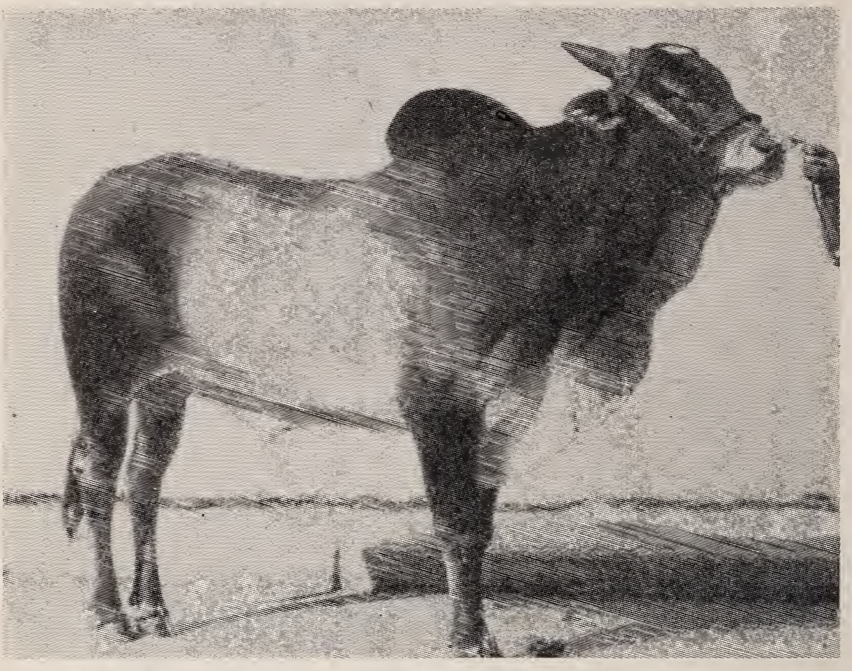

FIGURE 38.—Zebu, or Brahman, bull. Zebu cattle have commonly been crossed with native cattle in Cuba.

Recently chilled beef has been exported to the New York market. This consists largely of whole or quartered carcasses, usually graded Utility on the United States market, and brought about 14 cents a pound wholesale, at prices current in the summer of 1941.

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[53] A decree on July 16, 1941, fixed the minimum price for cattle at 3.2 cents a pound, f. o. b. Camagüey, and the wholesale price of beef in Habana at 6.35 cents a pound. A subsequent decree on February 14, 1942, fixed the maximum Camagüey price for cattle on the hoof at 3.8 cents per pound.

TABLE 54.—*Livestock slaughtered commercially in Cuba, 1928–39* [1]

Year	Cattle		Hogs		Sheep and goats	
	Animals	Meat produced	Animals	Meat produced	Animals	Meat produced
	Number	*1,000 pounds*	*Number*	*1,000 pounds*	*Number*	*1,000 pounds*
1928	340, 347	123, 582	148, 294	14, 707	28, 633	960
1929	445, 454	164, 341	176, 986	20, 366	30, 480	1, 050
1930	442, 466	170, 550	172, 283	20, 167	27, 415	824
1931	408, 834	155, 177	146, 534	17, 252	26, 741	876
1932	374, 714	129, 791	113, 670	13, 946	17, 479	525
1933	310, 992	119, 788	97, 000	12, 055	15, 000	487
1934	369, 648	137, 143	142, 637	16, 969	16, 645	442
1935	367, 544	129, 884	122, 435	13, 163	22, 866	768
1936	432, 206	135, 189	122, 385	13, 438	19, 414	780
1937	477, 957	170, 626	166, 450	18, 487	38, 311	1, 182
1938	449, 301	135, 036	187, 487	18, 387	34, 095	775
1939	457, 658	154, 812	218, 153	25, 977	28, 675	793
1940	481, 943	166, 191	229, 256	27, 477	27, 624	753
1941	510, 559	185, 419	209, 680	26, 489	33, 551	918

[1] This table includes only the officially recorded commercial slaughter for domestic consumption and does not include considerable private slaughter in rural areas or slaughter for export. In the case of hogs these data are much too small because, until recently, there was no tax on hog slaughter and consequently there was no incentive to record all commercial slaughter.

Official Government statistics.

HOGS

The semitropical climate of Cuba is not well adapted to hog production. Suitable feed for hogs is not as abundant or as cheap as pasture for cattle. Furthermore, reports state that gains from feeding a specified quantity of feed are not as great or as rapid as in the northern part of the United States. The relatively higher costs of hog production compared with beef production are reflected in the Habana prices of 6 to 8 cents a pound for hogs when cattle prices were about 3 cents.

Few farmers specialize in hog production or feed systematically. Most farmers keep a few hogs and usually permit them to run about the farm and pick up most of their feed. Palmiche nuts from the royal palm are an important source of protein and oily feed, but the supply of palmiche is limited. Imported grain is usually too expensive to be used for hog feed, but some domestic corn is fed.

The native type of hogs is the criollo, or chino (fig. 39). These are rangy and adapted to the climate and to finding their own feed, but do not produce rapid gains. Imported breeds, especially the Hampshire, have been crossed with the native type until now the criollo-Hampshire cross is the most common type in Cuba.

There are probably about 1 million hogs in Cuba. Table 54 shows about 230,000 hogs slaughtered commercially in 1940, but trade estimates place the number at nearer 400,000.[54] The industry has increased during recent years, but both pork and lard are still on an import basis. Quantities imported during recent years, especially of pork, were materially smaller than they were 10 to 15 years ago.

Consumption of pork products in 1937 is estimated (*19*) at 20.5 million pounds of fresh pork, 18 million of bacon, and 4.5 million of ham, totaling 43 million pounds, of which about 5 million are imported. With some further increase in production and better feeding

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[54] Until recently, slaughtered hogs have not been subject to an excise tax, and consequently there has been no accurate record of numbers.

Cuba would be able to supply the total requirements of pork but would still fall far short of meeting the requirements for lard.

Imports of salt pork, bacon, and hams, principally from the United States, averaged over 42 million pounds a year from 1920 to 1929. After increased tariff protection, domestic production expanded and imports fell sharply to only 4 million pounds in 1940 (table 53).

Lard requirements have always been far in excess of domestic production. Imports in 1920–29 averaged 92 million pounds annually. Higher import duties since 1927 have tended to increase domestic production of lard and to some extent of substitute lard compounds. During the 5 years 1936–40 imports averaged only 47 million pounds. Imports vary considerably, depending upon purchasing power: in 1933 they dropped below 10 million pounds and remained under 30 million until 1937.

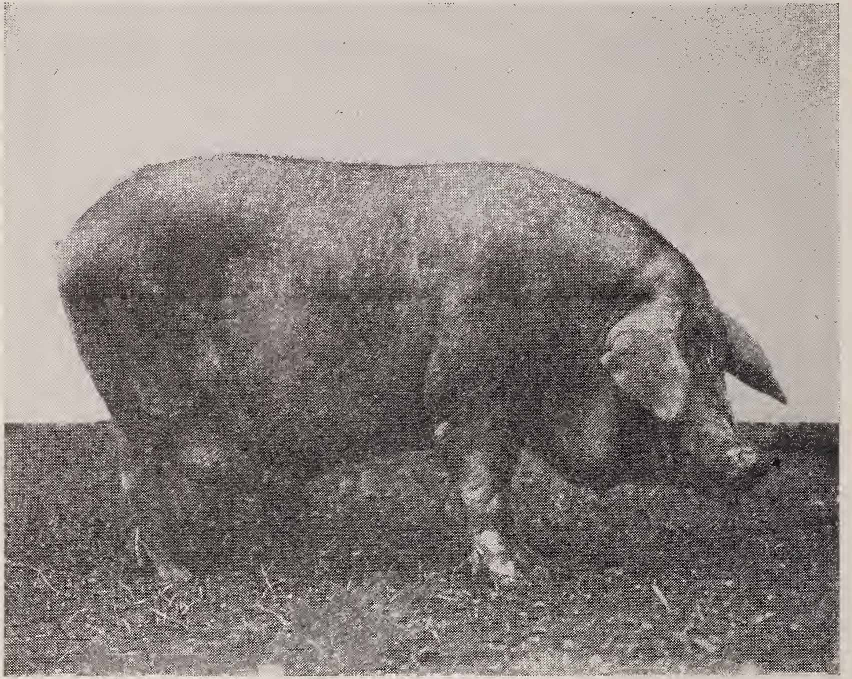

Figure 39.—A typical criollo-type hog.

Total consumption in 1937 was estimated by the Cuban Ministry of Agriculture (*19*) at about 85 million pounds, and on this basis more than one-half of the total requirements were imported. It is not likely that Cuba will attain self-sufficiency in lard production in the near future. Local production is handicapped by a relatively limited demand for pork as compared with lard, and production for lard alone is not profitable.

SHEEP AND GOATS

The Cuban climate is not well adapted to sheep production. The census of 1940 records 141,000 head. These were kept primarily for mutton, since the wool growth is usually not sufficient to warrant shearing. Some additional mutton, about 20,000 pounds a year, is imported.

Goats are generally kept on small farms and by poor families in outskirts of the cities. The 1934 census listed 54,000 head. They are kept for both milk and meat. The small herds are usually allowed to pasture and are rarely fed. Goat and kid meat is frequently sold as mutton or lamb.

The officially recorded slaughterings of sheep and goats in 1938 amounted to 34,000 head, producing about 1 million pounds of meat. Many more were probably slaughtered privately on farms.

Dairy Industry

Commercial dairying is a comparatively recent development in Cuba. Although the consumption of dairy products is small, particularly of fresh milk, the development of the industry during the past 15 years has been remarkable. Formerly imports were heavy, amounting to 40 or 50 million pounds of condensed milk, 5 million of cheese, and 2.5 million of butter, at a total cost of about 6 million dollars annually, but by 1940 dairying had developed to an export basis for all of these products. Exports in 1940 were valued at about two-thirds of a million dollars.

Nevertheless dairying in Cuba is on an extensive basis and for the most part consists of milking cows of the regular beef herds. Some dairy breeds have been imported, but by far the greater part of the milk is obtained from the native-Zebu or native-Brahman cross. Imported cattle must be acclimated and immunized and are usually less productive under Cuban conditions than in a cooler climate. No hay, grain, or concentrate feed is fed except in a few dairies that supply fresh milk to cities.

Prior to 1927 commercial dairies did not exist except in Habana, and even that city had to depend to a large extent on imports of dairy products. Production in other parts of the island was for purely local consumption, and no attempt was made to collect milk from rural areas for sale in the larger cities. Consumption of fresh milk was very small. Methods of cooling and sanitation were poor, and transportation was slow and inadequate.

The first move toward development of the dairy industry was the Milk Congress of 1927, which made the following suggestions: Formation of a cooperative dairy association; establishment of agricultural banks to assist in financing dairies; carrying out of educational campaigns to instruct dairymen in hygienic production of milk; holding of annual fairs; establishment of milk laboratories; and inspection of dairies and milk by the Government. Not all of these suggestions were put into effect, but the congress served to stimulate the general public and Government interest in the dairy industry.

Some improved cattle were imported; a few good herds were established and dairy-product manufacturing plants were constructed. One enterprise, in particular, with United States capital set up the model Ward's dairy with purebred dairy cattle and retail distribution and delivery of high-grade dairy products in Habana. Its laboratory was permitted to be used by the Government as an experiment station. Although this dairy farm with its intensive feeding was on too expensive a scale to be generally applicable in Cuba, it served as an illustration of what could be done and it acquainted Cubans with high-quality fresh dairy products.

In addition to the Habana area, which supplies primarily fluid milk, there are now two other large dairy districts in Cuba devoted largely to the manufacturing of dairy products. These two are in the principal cattle-grazing country in eastern Cuba. One of these areas centers at Sancti Spíritus in Las Villas and the other around the town of Bayamo, in Oriente.

According to the 1940 census there were 1,636,000 cows in Cuba. From 40 to 50 percent of these now are milked at least part of the time. In the principal grazing areas cows are usually milked only once a day, and when production falls below 2 or 3 quarts a day milking is discontinued and the cows are replaced by others from the beef herd. Production per cow, therefore, is frequently only from 1,000 to 2,000 pounds of milk a year. Total milk production is estimated at somewhere between 1 and 2 million quarts a day. Prices paid for milk for processing are relatively high compared with prices of other farm products and vary from $1 to $1.80 per 100 pounds.

BUTTER

Although butter production has increased sharply under tariff protection, the low purchasing power of the majority of the Cuban people results in a low domestic consumption, amounting to only about 1 pound per capita compared with 17 pounds per capita in the United States. Cuba is now self-sufficient, with a total production estimated at from 5 to 6 million pounds annually, produced largely in six commercial creameries. Butter imports in 1920–25 averaged about 2.5 million pounds annually but have declined rapidly to less than 30,000 pounds annually since 1932 (table 55). Exports began on a small scale in 1928 and since 1935 have far exceeded imports. In 1941 exports reached about 1.4 million pounds. During the past decade Cuba's production increased from an estimated 20 to 25 percent of requirements in 1930 to about 130 percent of requirements in 1941.

TABLE 55.—*Dairy products imported and exported, Cuba, 1920–40*

Year	Milk, condensed, evaporated, etc.		Butter		Cheese	
	Imports	Exports	Imports[1]	Exports	Imports	Exports
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1920	44, 957	0	2, 994	0	5, 478	1
1921	42, 812	0	2, 007	0	4, 672	3
1922	41, 241	0	1, 678	0	3, 788	3
1923	46, 963	0	2, 285	0	4, 995	3
1924	47, 987	0	2, 443	0	5, 619	8
1925	47, 994	0	2, 583	0	5, 568	3
1926	48, 567	0	2, 168	0	4, 463	1
1927	28, 540	0	1, 878	0	5, 242	3
1928	44, 340	0	1, 424	3	4, 163	12
1929	47, 415	0	1. 087	21	4, 484	6
1930	38, 988	0	524	38	2, 867	10
1931	16, 535	0	207	110	1, 378	7
1932	11, 415	0	58	41	744	5
1933	5, 150	0	12	26	256	1
1934	2, 822	0	15	10	322	3
1935	3, 384	0	24	217	382	9
1936	5, 335	1	25	652	365	23
1937	4, 550	3	18	954	479	23
1938	5, 997	77	28	223	578	12
1939	1, 261	17	10	523	291	26
1940	600	4, 090	9	1, 287	121	293
1941[2]	626	15, 620	0	1. 371	86	938

[1] Including a little margarine.

[2] Preliminary.

Official foreign-trade statistics.

CHEESE

Cuba's cheese consumption is also relatively low, probably amounting to less than 2 pounds per capita as compared with nearly 6 pounds in the United States. As recently as 1927 more than 5 million pounds of cheese were imported, but since 1933 imports have dropped off to an average of only one-third of a million pounds, limited to special types not produced in Cuba. Exports continued to be very small until 1940 when they amounted to nearly one-third of a million pounds and in 1941 exports rose to nearly 1 million pounds.

Production in 1941 is estimated at about 9 million pounds consisting largely of soft cream cheese, Gouda (Netherland), and Cheddar.

CONDENSED AND EVAPORATED MILK

Canned milk is the most important of all the dairy products made in Cuba from every standpoint—consumption, production, and foreign trade. Many families rely entirely on canned milk, and it is common practice for restaurants to serve canned milk with coffee. This is because of the difficulty of preserving fresh milk in the warm climate; the lack of refrigeration and adequate transportation; and the seasonal nature of milk production, with a peak during the rainy summer pasture season and short production during the winter dry period. Prior to 1930 Cuban imports of these products averaged about 45 million pounds, costing from 4 to 5 million dollars annually. Domestic production began in 1930 under Government tariff protection, and now there are three large plants at Bayamo, Sancti Spíritus, and Habana. The first two are the largest and are located in the cattle-ranch areas. Domestic production was about 40 million pounds in 1939. Exports began on a small scale in 1936 and by 1940 far exceeded imports and in 1941 amounted to over 15 million pounds. There is also a small production of powdered milk.

POULTRY

The Cuban poultry and egg industry is extensive but consists of a large number of small flocks receiving very little special attention or special feed. The climate is well adapted for poultry production, but there are practically no large commercial flocks. According to the 1934 census there were 12.5 million head of poultry, equivalent to about 3 per capita, which is approximately the same as the number per capita in the United States. There is now very little foreign trade in poultry or eggs, but prior to 1927 Cuba was an excellent market for eggs from the United States. From 1920 to 1927 United States exports to Cuba averaged more than 12 million dozen a year and accounted for 42 percent of total United States egg exports. Then in 1927 Cuba greatly increased the import duty. Higher prices in Cuba resulted, and these encouraged increased domestic production. Since 1931 exports to Cuba of eggs in the shell have not amounted to a thousand dozen a year, except in 1939 and 1940 (5,000 dozen in 1940).

A few flocks consist of imported breeds, but by far the most important is the native Cuban breed Cubalaya, which in 1939 was officially recognized by the American Poultry Association (*5*) as a standard breed (fig. 40). This breed has 3 varieties—white, black, and blackbreasted red; the birds have drooping tails and are rather small, about the same size as the Leghorn.

The importance of poultry as a source of meat is indicated by the fact that total consumption is estimated at about 40 million pounds (*19*) and that it is used in Cuba's national dish, chicken and rice. The sale of eggs is a very important steady source of a small amount of ready cash for farm families. In addition, the game birds play an important role in supplying amusement in rural areas.

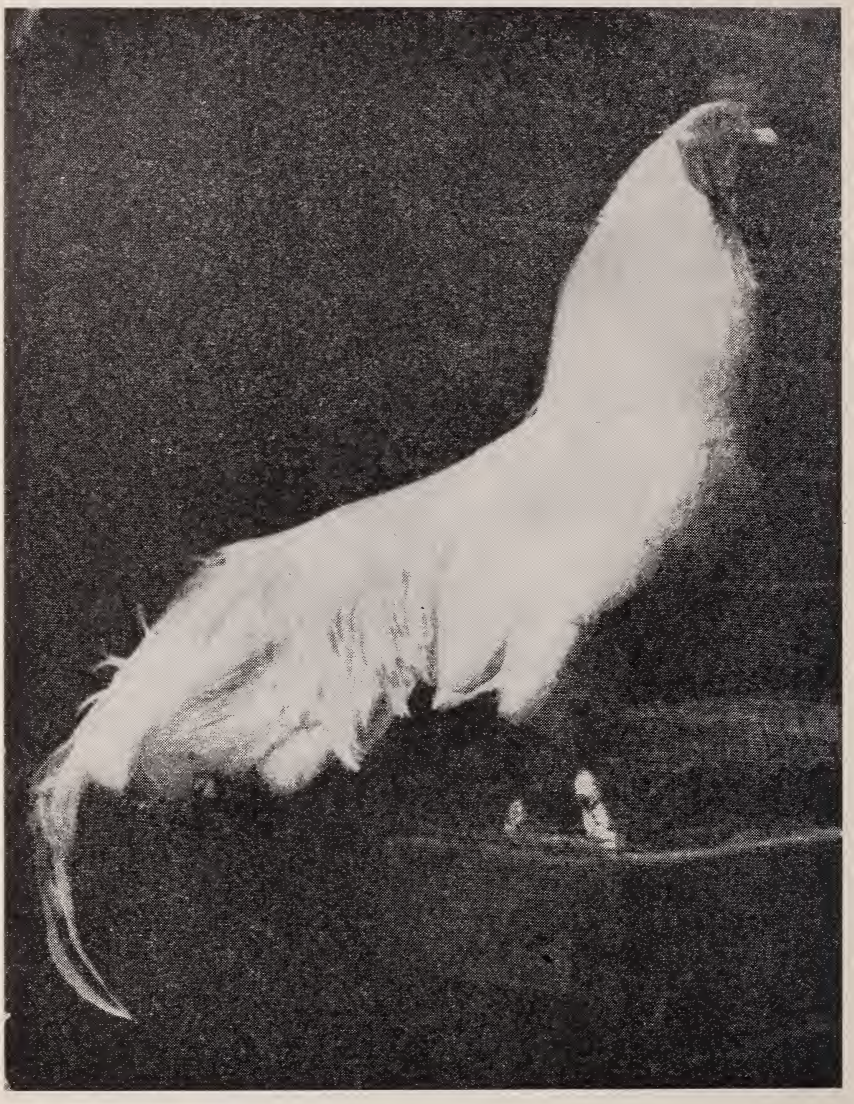

Figure 40.—The Cubalaya is one of the standard breeds of poultry.

Hides and Skins

Until 1941 hides and skins constituted Cuba's most important exports of livestock products and amounted to from 1 to 2 million dollars annually. These consisted almost entirely of wet-salted hides, of which from two-thirds to four-fifths were shipped to Germany until the war started. Substantial quantities of cured hides are imported, principally from the United States.

Almost all cattle hides produced in Cuba are of the wet-salted variety, the supply of dry-cured hides being confined to an occasional few hides obtained as a result of slaughter other than in duly established slaughterhouses. Individual cattle owners also dry-cure some hides for their own use, but these do not enter commercial channels.

Commercial cattle hides are of two types, the Havana Packer, produced by the large packers, and Slaughterhouse, which includes all others. Only Havana Packer hides enter the export market. They weigh from 65 to 70 pounds, are uniform and free from disfigurations, and come from cattle weighing 900 to 1,100 pounds. These hides are all short shanks but are not trimmed for ears and snouts. Incidence of ticks is limited in this grade. The production of export hides centers around Habana, where it averages 250,000 to 300,000 hides a year. Approximately an equal number are produced outside of Habana, but only about 10 percent of these are exportable. Less than half of the total production is exported.

Table 56 shows the destination of exports of wet-salted hides. This classification includes about 99 percent of the total exports. Prior to 1940 an average of only about 10 percent was shipped to the United States, but in 1940 this share rose to 90 percent, the United States replacing Germany.

Table 56.—*Hides and skins (wet-salted) exported from Cuba, 1926–40*

Period	Germany		Other Europe		United States		Total[1]	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
Average:								
1926–30	8, 469	1, 078	3, 012	318	2, 849	364	14, 336	1, 760
1931–35	10, 109	690	535	32	1, 506	88	12, 155	810
Annual:								
1936	10, 165	1, 231	805	100	957	134	11, 927	1, 465
1937	10, 286	1, 381	2, 537	376	2, 194	318	15, 426	2, 143
1938	13, 768	1, 273	2, 940	273	9	1	16, 717	1, 547
1939	7, 877	669	2, 220	199	1, 517	149	11, 616	1, 017
1940	0	0	1, 210	139	10, 459	852	11, 687	993

[1] Includes small quantities to other countries.

Com. Exterior, Cuba Min. de Hacienda, Dir. Gen. de Estadís.; 1940 from consular reports.

The average price of export hides during recent years has varied from 8.7 to 13.9 cents a pound. With the loss of much of the European market and the accumulation of excessive stocks in 1940, prices of Havana Packer dropped to as low as 4 cents in September 1940, but by the middle of 1941 prices had recovered to 8.6 cents. Commercial production of calfskins is relatively small at about 12,000 skins a year. That of sheepskins, lambskins, and goatskins is estimated at about 45,000 a year. Practically all such skins are consumed domestically, and considerable additional quantities of these leathers are imported from the United States for use in Cuba's expanding shoe industry (table 57).

TABLE 57.—*Tanned and cured skins imported into Cuba, 1926–40*

Period	Quantity	Value
Average:	*1,000 pounds*	*1,000 dollars*
1926–30	1,725	----------------
1931–35	860	----------------
Annual:		
1936	3,084	1,346
1937	3,565	2,036
1938	2,578	1,486
1939	1,831	1,499
1940	1,287	1,164

FOREIGN TRADE

Foreign trade plays an exceptionally important role in Cuba's economic life. The country's production centers around sugar, tobacco, and a few other crops grown primarily for export, whereas industries supplying domestic consumption are relatively unimportant. The great importance of foreign trade is shown by its high value. The average annual value of all exports during the 5 years 1936–40 was equivalent to $36 per capita, whereas the total export trade of the United States amounted to only about $24 per capita. In the United States the export trade is relatively unimportant compared with domestic consumption, but in Cuba it is of major importance.

Cuba's dependence upon foreign trade dates back to days when the island was a Spanish colony. It was to Spain's immediate interest to develop the island only as a source of raw material for sale to Spain or through Spanish merchants. At the same time, the island was kept heavily dependent on imports from Spain, and local industries were not encouraged. Obstacles were placed against economic development and against trade with other countries. Cuba therefore became a great consuming market for imported goods.

When Cuba attained its independence at the turn of the century, the first objective was to open its markets to world trade. Imports and exports each increased in value from about 65 million dollars annually in 1902 to approximately 150 million dollars each in 1912–14. (See fig. 41.) Then the first World War with its greatly increased demand for Cuban sugar created a boom, which continued for several years after the war, when exports reached a peak of nearly 800 million dollars, in large measure because of the high prices for sugar, averaging 11 cents a pound in 1920. Subsequently, countries all over the world increased their domestic production of sugar and imposed higher tariffs and other trade barriers against imported sugar. Nevertheless, the post-war period of prosperity permitted Cuba to maintain a relatively high level of exports until about 1929, after which the depression decline was very rapid. By 1932–33 exports had dropped in value to only 80 million dollars and imports to less than 50 million. Recovery during recent years has been slow and cut short by the loss of European markets as a result of the present war, but in 1941 exports rose sharply to 212 million dollars.

The balance of foreign trade is normally in Cuba's favor. The value of exports has exceeded the value of imports roughly by 40 million dollars annually during the past 10 years. In other words, imports usually amount to only 65 to 80 percent of the value of exports. This disparity in the value of physical trade is due primarily to the fact that Cuba is a debtor country and pays interest and amortization on a large part of the investment in Cuban sugar mills and railways. In addition Cuba's foreign trade is handled in foreign vessels, necessitating the payment of large freight and insurance charges to foreign countries.

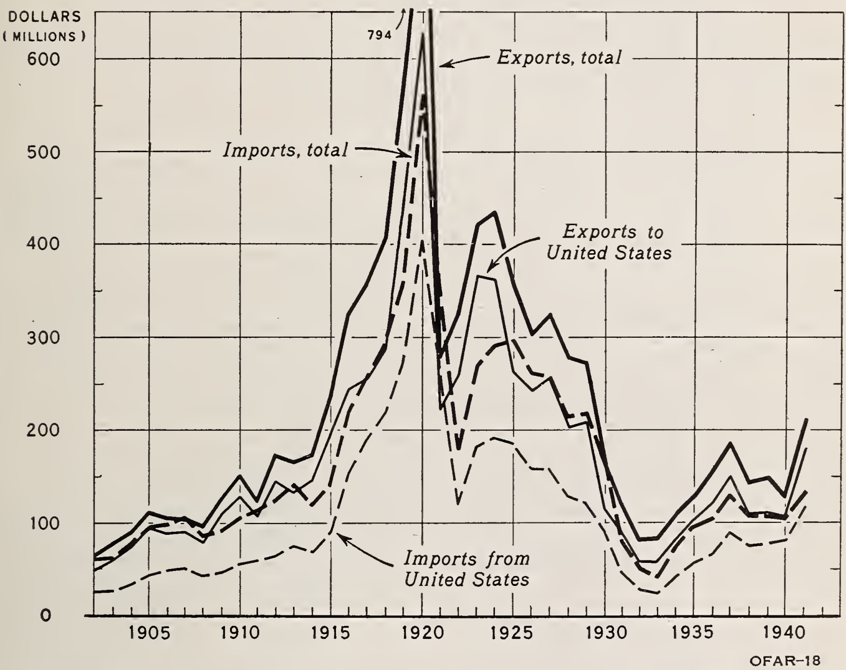

Figure 41.—Cuban foreign trade, total and with the United States, 1902–41.

Exports

Cuba's exports are almost entirely agricultural products (table 58), whereas imports are only about one-fourth agricultural, being primarily manufactured products.

TABLE 58.—*Exports of principal agricultural products from Cuba in years specified*

Product	1929		1932		1936		1937		1938		1939		1940 [1]	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
Sugar, raw and refined	11,089,784	204,849	5,862,708	53,973	5,821,603	112,591	5,976,167	127,285	5,822,388	99,771	6,138,259	105,850	4,616,617	79,302
Sugar products	[2] 244	11,674	[2] 131	3,771	[2] 255	14,281	[2] 318	20,883	[2] 218	12,613	[2] 257	11,236	[2] 322	16,312
Tobacco, unmanufactured	46,702	27,247	36,875	10,381	23,053	9,153	27,383	11,216	28,011	10,478	28,763	11,057	26,364	10,880
Tobacco, manufactured [3]	2,398	10,678	868	2,545	1,216	4,178	951	3.731	909	3,062	783	3,033	471	1,261
Fruit	307,921	3,523	291,550	2,835	410,044	3,270	513,140	5,008	305,771	3,070	344,553	3,534	323,011	3,358
Vegetables	73,292	1,398	46,186	871	80,697	1,163	64,119	982	67,891	1,067	54,608	733	88,036	1,302
Fibers and cordage	8,821	624	11,162	417	18,972	1,109	28,271	1,622	24,100	1,044	26,187	942	34,062	1,574
Coffee	2	1	13,424	1,206	4,942	427	14,683	1,131	15,041	677	18,777	856	14,868	626
Honey	9,938	646	11,521	331	11,410	580	14,742	733	14,365	677	12,277	600	4,090	215
Meats	1,562	164	216	7	8	-------	267	1	26	2	492	28	12,244	725
Hides and skins	14,963	2,088	8,468	427	11,927	1,465	15,426	2,143	16,806	1,570	11,773	1,050	11,797	1,027
Total above agricultural items [4]	-------	262,892	-------	76,764	-------	148,217	-------	174,735	-------	134,031	-------	138,919	-------	116,582
Forest products	-------	683	-------	153	-------	451	-------	477	-------	390	-------	414	-------	422
Minerals	-------	4,247	-------	1,305	-------	3,555	-------	7,160	-------	5,255	-------	4,627	-------	6,015
Others	-------	4,618	-------	2,450	-------	2,624	-------	3,699	-------	3,002	-------	3,716	-------	4,269
Total exports	-------	272,440	-------	80,672	-------	151,847	-------	186,071	-------	142,678	-------	147,676	-------	127,288
To United States	-------	208,759	-------	60,871	-------	121,899	-------	150,149	-------	108,362	-------	111,182	-------	104,905

[1] Preliminary.
[2] Value of sugar products includes rum; quantity is shown in millions of gallons excluding rum.
[3] Weights are leaf used in the manufacture of exported tobacco products according to data from the Tobacco Institute.
[4] Other exported agricultural items are valued at nearly an additional million dollars.

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Sugar and tobacco and products made from them accounted for all but 12 percent of Cuba's exports during the period 1936–40 (table 59). Fresh fruits—including bananas, grapefruit, pineapples, and avocados—henequen and cordage, and winter vegetables—such as tomatoes, eggplant, peppers, and cucumbers—made up another 4 percent of the total. Livestock products accounted for only 1.6 percent of the total, although their value increased considerably in 1940 and 1941. Nonagricultural exports accounted for less than 6 percent of the total. These consisted principally of minerals, forest products, and sponges.

TABLE 59.—*Cuban exports, by product groups, average 1936–40*

Product	Value	Percentage distribution
	Million dollars	*Percent*
Sugar and products	120.0	79.1
Tobacco and products	13.6	9.0
Fresh fruit	3.5	2.3
Winter vegetables	1.1	0.7
Henequen and cordage	1.3	0.9
Coffee	0.7	0.5
Total vegetable products	140.2	92.5
Livestock products	2.5	1.6
Total agricultural products	142.7	94.1
Others	9.0	5.9
Total exports	151.7	100.0

IMPORTS

Cuba's imports are predominantly manufactured products (table 60), but nevertheless agricultural products during the 1936–40 period accounted for more than one-fourth of the total (table 61). Of these, rice, flour, and lard were by far the most important, accounting for about 60 percent of all agricultural imports.

TABLE 60.—*Imports of principal agricultural products into Cuba in years specified*

Product	1929		1932		1936		1937		1938		1939		1940	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 pounds	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*	*1,000 pounds*	*1,000 dollars*
Rice	458, 863	14, 743	314, 453	5, 354	444, 110	7, 323	493, 879	9, 960	411, 740	8, 863	444, 148	9, 184	429, 200	9, 911
Wheat and flour	251, 540	8, 766	168, 762	3, 115	200, 213	5, 340	209, 955	6, 306	205, 145	5, 505	211, 877	3, 921	219, 938	4, 640
Grain	80, 673	1, 490	11, 356	114	3, 532	42	2, 400	39	3, 402	66	3, 554	51	2, 485	34
Fresh fruit	10, 690	622	5, 073	161	7, 859	328	8, 406	370	11, 640	489	9, 622	402	12, 428	510
Beans and peas	101, 097	5, 793	36, 505	894	60, 744	1, 693	61, 790	2, 351	53, 056	1, 604	48, 995	1, 865	48, 327	1, 867
Onions and garlic	48, 067	1, 448	22, 668	317	33, 153	676	34, 425	722	29, 006	674	30, 924	599	28, 360	765
Potatoes	210, 063	3, 591	58, 422	567	63, 735	1, 196	66, 546	817	87, 439	916	61, 800	887	29, 218	262
Vegetable oils	17, 630	4, 409	22, 765	3, 016	51, 982	3, 208	60, 752	3, 948	43, 144	2, 938	42, 099	2, 434	38, 558	1, 875
Cotton, raw	97	15	381	23	4, 956	631	3, 627	431	4, 974	457	7, 048	722	6, 726	600
Beef	20, 055	2, 690	130	18	79	8	82	15	37	9	31	11	22	7
Pork	40, 117	5, 604	12, 939	850	6, 155	993	5, 139	842	5, 849	880	4, 499	681	3, 982	656
Milk, condensed	47, 415	4, 529	11, 351	731	4, 976	220	4, 325	192	5, 655	355	941	53	459	31
Cheese	4, 484	1, 001	744	117	365	58	479	74	578	97	291	55	121	30
Butter	990	431	58	13	25	7	18	5	28	6	10	3	9	2
Lard	83, 206	9, 705	21, 876	1, 166	28, 547	3, 328	41, 131	4, 894	45, 900	3, 970	53, 470	3, 486	66, 332	3, 703
Other animal fats	23, 329	1, 705	20, 752	628	4, 030	197	11, 473	488	4, 303	186	6, 764	208	3, 049	137
Eggs	2, 726	808	13	1	15	3	38	6	24	4	15	2	2	1
Hides and skins	2, 255	2, 900	1, 457	419	3, 084	1, 346	3, 565	2, 036	2, 578	1, 486	1, 831	1, 499	1, 287	1, 164
Total above agricultural items [1]		70, 250		17, 504		26, 597		33, 496		28, 505		26, 063		26, 195
Petroleum and products		9, 369		3, 352		5, 687		6, 618		5, 166		6, 697		5, 743
Coal and coke		3, 975		973		1, 506		1, 759		1, 474		1, 254		1, 341
Lumber		4, 808		764		1, 863		2, 554		2, 196		1, 935		1, 631
Others		127, 813		28, 431		67, 562		85, 145		68, 666		69, 913		68, 950
Total imports		216, 215		51, 024		103, 215		129, 572		106, 007		105, 862		103, 860
From United States		127, 050		27, 653		66, 494		88, 847		75, 152		78, 381		81, 042

[1] Imports of other agricultural products averaged, roughly, 2 million dollars during recent years.

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TABLE 61.—*Principal imports into Cuba, average 1936–40*

Agricultural			Nonagricultural		
Item	Value	Percentage of total imports	Item	Value	Percentage of total imports
Vegetable products:	*Million dollars*	*Percent*		*Million dollars*	*Percent*
Rice	9.1	8.3	Textiles	21.5	19.6
Wheat flour	5.1	4.7			
Vegetable oils	2.9	2.7	Machinery, autos, and instruments	12.3	11.2
Beans and peas	1.9	1.7	Metals, etc	9.9	9.0
Potatoes	.8	.7	Petroleum products	6.0	5.5
Onions and garlic	.7	.6	Paper, etc	4.7	4.3
Cotton	.6	.5	Lumber	1.8	1.6
Malt	.6	.5	Coal and coke	1.4	1.3
Fresh fruit	.4	.4	Others	22.0	20.1
Other	1.2	1.1			
Total vegetable products	23.3	21.2			
Livestock products:			Total nonagricultural products	79.6	72.6
Lard	3.9	3.6	Total imports	109.7	100.0
Hides and skins	1.5	1.4			
Pork	.8	.7			
Others	.6	.5			
Total livestock products	6.8	6.2			
Total agricultural products	30.1	27.4			

Imports of nonagricultural products consist primarily of manufactured textile products, machinery, automobiles, instruments, petroleum products, and paper. These accounted for well over one-half of the total imports.

TRADE BY COUNTRIES

The United States supplied slightly more than two-thirds of Cuba's total imports and Europe less than 19 percent in 1936–38 just prior to the outbreak of war (table 62). About 10 years ago the United States supplied only 56 percent and Europe about 25 percent. In 1940, however, as a result of the war, the proportion from the United States rose to 78 percent and that from Europe declined to only 10 percent (fig. 42 and table 63).

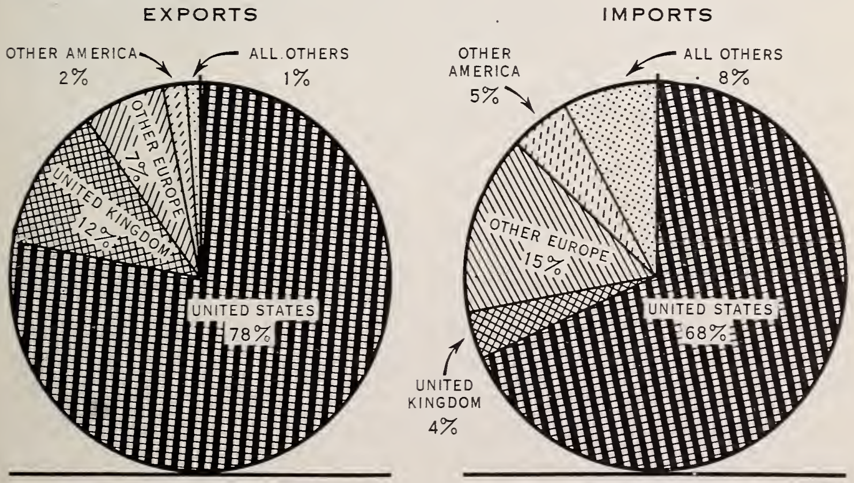

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FIGURE 42.—Cuban foreign trade, percentage distribution by countries, 1935–40.

TABLE 62.—*Cuba's foreign trade distribution among principal countries, average 1936–38*

Country	Imports	Exports
	Percent	*Percent*
America:		
United States	68.0	78.8
Others	5.0	1.7
Total America	73.0	80.5
Europe:		
United Kingdom	4.7	12.3
Germany	4.5	1.7
France	2.4	1.4
Spain	2.1	.6
Others	5.2	2.7
Total Europe	18.9	18.7
Far East	7.6	.1
Others	.5	.7
Total	100.0	100.0

TABLE 63.—*Cuban foreign trade, by country and value, 1929–40*

IMPORTS

Country	1929	1932	1936	1937	1938	1939	1940	1941
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
America:								
United States	127,050	27,653	66,424	88,847	75,152	78,381	81,042	117,111
Canada	4,915	1,076	980	1,011	815	980	699	1,509
Mexico	2,769	845	1,149	1,510	722	770	734	2,075
Argentina	660	74	316	404	213	225	306	866
Others	9,633	1,663	3,307	3,945	2.580	3,183	3,957	3,865
Total, Americas	145.027	31,311	72,176	95,717	79,482	83,539	86,738	125,426
Europe:								
United Kingdom	12,021	2,985	5,096	6,321	4,490	3,065	3,539	3,416
Spain	8,929	2,979	3,494	1,854	1,586	1,340	1,659	1,180
Germany	7,477	2.134	4,798	5,845	4,681	3,391	170	47
France	8,990	1,688	2,605	2,897	2,778	2,273	1,433	42
Other	14,391	3,625	4,919	6,643	6,063	5,769	3,645	1,209
Total, Europe	51,808	13,411	20,912	23,560	19,598	15,838	10,446	5,894
Far East	18,390	6,204	9.804	9,578	6,198	5,842	6,236	2,463
Others	990	98	323	717	729	643	440	107
Total imports	216,215.	51,024	103,215	129,572	106,007	105,862	103,860	133,890

EXPORTS

Country	1929	1932	1936	1937	1938	1939	1940	1941
America:								
United States	208,754	57,482	121,899	150,149	108,363	111,182	104,905	181,220
Canada	3,451	600	223	662	335	635	1,014	2,426
Mexico	57	2	18	38	32	25	51	1,819
Argentina	3,240	1,000	416	557	708	468	372	401
Other	3,586	1,787	2,102	1,503	1,919	2,593	2,181	4,116
Total, America	219,088	60,871	124.658	152,909	111,357	114.903	108,523	189,982
Europe:								
United Kingdom	34,242	12,444	19,881	20,011	19,602	17,983	9,980	16,760
Spain	3,273	1,488	1,155	610	1,292	2,205	2,965	2,180
Germany	2,251	657	2,406	3.136	2,755	1,471	(1)	(1)
France	5,818	2,040	2,556	2,304	2,053	1,753	1,430	1
Other	4,696	2.014	2,825	5,987	4.303	8,512	3,472	875
Total, Europe	50,280	18,643	28,823	32,048	30,005	31,924	17,847	19,816
Far East	1,386	355	198	76	202	129	264	1,005
Others	1,686	803	1,168	1,038	1,114	720	654	705
Total exports	272,440	80,672	154,847	186,071	142,678	147,676	127,288	211.508

(1) Less than 500 dollars.

Com. Exterior, Cuba Min. de Hacienda. Dir. Gen. de Estadís

An additional 5 percent of Cuba's imports were obtained from other American countries in 1936–38, and practically all of the remaining 8 percent were from the Far East. Among the European suppliers prior to the war the United Kingdom and Germany were of approximately equal importance, followed by Spain and France.

Imports from European countries, particularly the United Kingdom and Germany, consisted predominantly of textiles, machinery, and other manufactured products. Some coal, coke, paper, vegetable oils, and malt were also imported from northwestern Europe. The most important items from Spain were olive oil and olives. South American countries furnished beans and some flour, oats, petroleum, and formerly jerked beef. Mexico and Central American countries supplied principally petroleum and beans. The Far East—Siam, India, Burma, and Indochina—until recent years was Cuba's principal source of large imports of rice. India also was an important supplier of jute, and Japan supplied textiles and machinery.

About three-fourths of Cuba's exports were to the United States during 1936–38. European countries took about 19 percent and all other countries only 2.5 percent. The United Kingdom, which accounted for two-thirds of all exports to Europe, took principally sugar, sirups and molasses, cigars, and small quantities of grapefruit, leaf tobacco, and sponges. Exports to Germany before the war consisted principally of hides and skins, tobacco, henequer, honey, and sponges. Tobacco also figures predominantly in exports to Spain.

Trade With the United States

United States trade with Cuba during the past 5 years (1936–40) was greater than with any other Latin American country. It averaged 197 million dollars annually. Furthermore, Cuba has been by far the largest Latin American market for United States agricultural products, taking about 22 million dollars' worth, or more than one-third of all agricultural exports to Latin American countries (tables 64, 65, and 66). Agricultural imports from Cuba consisted mostly of supplementary products and accounted for only one-fourth of all agricultural imports from Latin American countries. Table 65 and 66 show the principal agricultural items in the United States trade with Cuba. The three items—lard, flour, and rice—accounted for more than two-thirds of the total agricultural exports to Cuba.

TABLE 64.—*United States agricultural exports to and imports from Cuba, average 1938–40*

Item	Exports to Cuba		Item	Imports from Cuba	
	Million pounds	*Million dollars*		*Million pounds*	*Million dollars*
Agricultural:			Agricultural:		
Lard	56.7	3.9	Sugar	3,772.0	72.6
Pork	4.7	.7	Molasses	[1] 186.0	8.4
Wheat flour	198.0	4.4	Tobacco, unmanufactured.	14.0	8.3
Rice	234.4	6.6			
Beans and peas	23.0	.8	Bananas	[2] 4.5	1.9
Potatoes	39.6	.5	Pineapples		1.7
Other vegetables	23.4	.6	Other fruit	16.8	.3
Fruit	13.2	.7	Tomatoes	46.5	.9
Cotton, raw	6.2	.7	Other vegetables	20.1	.5
Vegetable oils	14.0	.8	Henequen and twine	21.0	1.0
Others		2.1	Coffee	9.6	.4
			Others		.7
Total agriculture		21.8			
			Total agricultural		96.7
Nonagricultural		58.4	Nonagricultural		7.9
Total exports		80.2	Total imports		104.6

[1] Million gallons.
[2] Million bunches.

Among the other items exported to Cuba from the United States are condensed and evaporated milk, miscellaneous animal fats, seeds, onions, garlic, canned vegetables, apples, pears, grapes, canned fruit, raisins, prunes, soybean oil, cottonseed oil, and linseed oil. Compared with exports of about 15 years ago, United States shipments of pork and dairy products have declined as a result of the development of the livestock industry in Cuba. On the other hand, shipments of rice, beans, and onions have increased considerably, particularly during recent years.

United States imports from Cuba are dominated by sugar, molasses, and sirups, which accounted for more than three-fourths of all imports from Cuba during 1938–40. Tobacco, the next most important item, accounted for an additional 8 percent and, together with sugar and molasses, totaled 85 percent. The minor items of importance are bananas, pineapples, both fresh and in brine, henequen fiber and binder twine, tomatoes, coffee, eggplant, peppers, cucumbers, okra, avocados, grapefruit, and beeswax. Chilled-beef shipments began in volume in 1940, and by 1941 exceeded the value of winter-vegetable exports.

Table 65.—*United States exports to Cuba, 1936–40* [1]

Item	Quantity						Value				
	Unit	1936	1937	1938	1939	1940	1936	1937	1938	1939	1940
Agricultural:							*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Lard	1,000 pounds	31,010	41,363	47,454	55,431	67,401	3,579	4,871	3,976	3,814	3,846
Pork products	do	5,271	4,059	5,363	4,364	4,645	888	734	817	636	595
Dairy products	do	533	351	3,654	742	782	102	117	533	138	141
Other livestock products [2]							625	321	261	200	296
Wheat flour	1,000 barrels	1,023	1,053	989	1,045	1,015	5,142	6,361	4,946	3,937	4,941
Rice, milled	1,000 pounds	2,636	135,623	204,606	209,253	289,561	69	4,306	5,296	6,125	8,323
Other grain [3]	do	4,169	10,820	19,080	13,775	6,800	302	564	609	450	500
Feed	Tons	3,453	3,582	4,053	3,134	1,613	120	131	130	96	52
Potatoes	1,000 pounds	41,132	44,343	57,961	39,146	31,877	690	412	564	566	322
Beans, dry	do	3,602	2,370	6,205	21,991	22,560	100	93	217	792	798
Peas, dry	do	4,257	6,623	8,352	7,186	2,718	119	182	198	245	129
Onions	do	24,076	22,500	20,941	22,176	21,243	397	454	452	326	445
Fresh vegetables							94	78	125	115	133
Canned vegetables [4]	1,000 pounds	2,087	3,076	2,654	2,602	2,919	174	253	215	195	239
Apples	1,000 bushels	76	97	124	120	151	133	159	201	195	256
Other fresh fruit	1,000 pounds	3,125	3,977	4,374	3,783	3,968	161	214	199	155	180
Dried fruit	do	1,051	1,565	1,556	1,422	1,963	63	98	84	87	121
Canned fruit	do	2,045	2,553	2,493	2,681	3,076	192	235	215	234	260
Nuts	do	201	630	563	689	428	36	79	68	90	72
Vegetable oils	do	16,613	11,549	16,318	13,898	8,260	943	998	1,040	1,092	835
Cotton, raw	Bales	8,030	7,310	10,621	20,397	6,214	532	448	517	1,065	381
Total agricultural							14,461	21,108	20,663	20,533	22,865
Nonagricultural:											
Leather and shoes							1,878	2,612	1,906	2,152	1,820
Textiles							13,601	16,720	12,053	15,236	13,801
Wood and paper							3,909	6,078	4,400	4,410	4,836
Coal and coke							1,501	1,605	1,513	1,244	1,322
Petroleum, etc							3,284	4,483	4,926	3,981	3,522
Chemicals, etc							3,873	4,533	3,892	4,990	5,340
Metals and manufacturing							6,167	9,582	7,129	9,101	9,462
Autos, trucks, etc							4,333	5,516	3,970	2,879	3,757
Machinery, other							6,578	8,941	7,342	7,154	7,720
Others							7,121	9,583	7,884	9,130	9,688
Total exports							66,706	90,761	75,678	80,830	84,133

[1] Does not include reexports.

[2] Exclusive of hides, skins, and leathers.

[3] Including grain, cereal products, and starch.

[4] Including pickles and relishes.

Official United States trade statistics.

TABLE 66.—*United States imports from Cuba, 1936–40*

Item	Quantity						Value				
	Unit	1936	1937	1938	1939	1940	1936	1937	1938	1939	1940
							1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Agricultural:											
Meat, beef	1,000 pounds	(1)	(1)	5	164	11, 206	(1)	(1)	1	16	832
Beeswax	do	434	393	390	630	697	103	108	76	120	158
Sugar	Million pounds	3, 850	4, 179	3, 758	3, 745	3, 812	96, 473	103, 810	76, 829	72, 772	68, 273
Molasses, sirups	Million gallons	200	245	139	169	249	10, 883	14, 446	7, 313	6, 518	11, 399
Tobacco, unmanufactured	1,000 pounds	14, 053	13, 944	12, 744	13, 724	15, 428	8, 317	8, 543	7, 924	8, 079	8, 937
Bananas	1,000 bunches	6, 151	8, 534	4, 227	4, 790	4, 375	2, 772	3, 645	1, 641	2, 096	1, 925
Pineapples [2]							1, 000	1, 632	1, 548	1, 824	1, 759
Grapefruit	1,000 pounds	8, 403	8, 640	4, 072	4, 529	12, 123	138	105	49	55	177
Avocados	do	8, 841	11, 587	9, 971	7, 927	11, 927	195	234	200	146	219
Tomatoes	do	44, 031	42, 795	44, 494	33, 963	60, 922	765	771	818	596	1, 180
Eggplants	do	8, 563	4, 768	7, 533	4, 174	5, 748	174	93	146	82	120
Lima beans	do	4, 612	5, 193	4, 513	3, 961	4, 050	133	138	147	103	103
Other vegetables	do	13, 277	8, 987	9, 783	6, 473	14, 003	302	217	237	185	388
Coffee	do	1, 628	9, 682	7, 587	12, 825	8, 291	104	673	324	540	337
Henequen, cordage	do	14, 475	18, 529	12, 857	19, 087	31, 032	873	1, 114	642	750	1, 503
Total agricultural							122, 232	135, 529	97, 895	93, 882	97, 310
Nonagricultural:											
Rum	1,000 gallons	348	305	194	177	164	1, 579	1, 604	1, 005	909	821
Sponges	1,000 pounds	363	316	271	277	465	387	364	344	288	504
Manganese ore							522	2, 186	2, 242	1, 690	3, 060
Copper ore							1, 231	2, 765	1, 470	856	1, 675
Iron ore							1, 056	1, 066	358	596	437
Chromium ore							358	463	198	361	345
Other products							2, 369	2, 921	1, 932	2, 504	3, 169
Total imports							129, 734	146, 898	105, 444	101, 086	107, 321

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[1] Less than 500.
[2] Including fresh, canned, and in brine.

Official United States trade statistics.

Cuba normally exports more goods to the United States than it imports from the United States; the difference averaged about 30 million dollars annually in 1938–40. The value of imports from the United States during this period equaled only 72 percent of the value of Cuba's exports to the United States. However, the same situation holds true for Cuba's total foreign trade. The proportion of Cuba's imports obtained from the United States has steadily and rapidly increased since 1932 to over 87 percent in 1941. This was the highest percentage on record and was approximately equal to the percentage of Cuban exports going to the United States.

The balance of the tangible or material foreign trade in Cuba's favor is necessitated by the fact that Cuba is a debtor nation and must service its debt by repaying other nations both interest and principal on the debt. The largest portion of the foreign investments in Cuba is held by interests in the United States,[55] and naturally the disparity between the value of goods imported and exported is greater in the case of the United States than for most other countries. United States direct investments in Cuba exceed those in any other country in the world, except Canada, and at the end of 1936 were estimated at 666 million dollars.[56]

Payment to the United States for the service on investments in Cuba is the most important single intangible item in the balance of trade between the two countries, but there are no reliable estimates as to the total amount of money involved in such payments. Other items of payments to the United States are about 4 million dollars of expenditures by Cuban travelers in the United States and about 3 million dollars (considerably higher since the war) for freight, insurance, and other shipping expenses on United States ships. The most important intangible item on the other side, payment to Cuba, is about 15 million dollars spent by United States travelers in Cuba.

TRADE POLICY

With no other country does the United States have as close economic relations as with Cuba.[57] Cuba is the only country with which the United States has a reciprocity treaty involving exclusive preferential tariff treatment. For nearly four decades trade betweeen the two countries has received such special tariff treatment; each country accords lower rates to the products of the other than it accords imports from other countries. Under the Treaty of Commercial Reciprocity of 1902 the United States granted Cuba on all dutiable commodities exclusive reductions of 20 percent below the rates to other countries. Reductions of 30 percent were granted on wheat flour from the United States and 40 percent on rice (*16*).

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[55] The greater part of the United States investments in Cuba date back to the World War period, 1914–18.

[56] United States investments in Cuba in 1936 were estimated by the U. S. Department of Commerce as follows (*11*):

	Million dollars
Public utilities and transportation	315
Sugar mills	240
Manufacturing	27
Distribution	15
Mining and smelting	15
Petroleum	6
Others	48
	666

[57] For further discussion of the commercial relationships between the two countries see The Foreign Trade of Latin America (*14*).

This exclusive preferential treatment of trade between Cuba and the United States is the outstanding element of trade policy between the two countries. It is generally recognized as an exception to the most-favored-nation policy under which concessions are made applicable to all countries alike except those that militate against the United States. It is largely as a result of the close commercial relations that Cuba now obtains from the United States a higher proportion of its import requirements than does any other Latin American country and exports to the United States a larger percentage of its products than any except Honduras and Panama.

The second vital factor in Cuban trade policy was the increase in tariff rates beginning in 1927 to protect and encourage domestic industries. Following the sharp decline in the value of sugar exports and the introduction of nationalistic policies in many other countries, Cuba was forced to look to other sources of income and to reduce imports. This it endeavored to accomplish by diversifying production particularly of products formerly imported. Consequently, from 1927 on, tariffs were raised generally on all imported foreign goods that might be produced in the country. The efficacy of these measures with respect to individual products has already been discussed.

Trade with the United States was greatly improved as a result of the trade agreement of September 3, 1934. This was the first agreement negotiated after the enactment of the United States Trade Agreements Act and greatly extended the scope of the preferential treatment between Cuba and the United States. Under this agreement Cuba granted concessions to the United States on more than 400 items, with preferences ranging from 20 to 60 percent. The United States in turn, granted concessions to Cuba on 35 items, increasing the guaranteed preference in some cases to 50 percent. This agreement was modified by additional concessions through supplementary agreements effective December 23, 1939, and January 5, 1942.

Another important step in Cuba's general foreign-trade policy was the establishment of a policy of differential tariff treatment for different countries, based on Cuba's trade balances with such countries. This became effective on March 29, 1935, under the so-called Import Control Law. It effected a far-reaching change in Cuban tariff policy and was designed to encourage exports by granting lower duty rates to those countries that imported heavily from Cuba. A maximum tariff rate, equal to double the minimum rate, became applicable on imports from those countries that according to official statistics purchased from Cuba less than 25 percent as much as Cuba purchased from them. An intermediate rate, plus an overcharge of 25 percent, became applicable on imports from those countries that purchased 25 to 50 percent as much as Cuba purchased from such countries. The minimum tariff rate is applicable only to those countries whose purchases from Cuba exceed 50 percent of Cuba's purchases from them.

This law, however, provides that exceptions may be made and the minimum rates applied to raw materials and articles of prime necessity that cannot be obtained from those countries that observe commercial reciprocity. Several commercial treaties and agreements have been negotiated with other countries. Most-favored-nation treatment has been extended to Spain and France since 1927 and 1929, respectively, and to the United Kingdom since 1938. Some agreements with other countries are of a more limited scope, and some have been abrogated.

Cuban foreign trade is also affected by certain nontariff controls, such as special taxes, import and export controls, and exchange controls. Trade control was authorized under a Cuban tariff law of 1927, but the principal measures taken under this law were quota limitations on the importation of condensed and evaporated milk since May 1937 and on imports of henequen and sisal fiber since 1939. A form of exchange control has also been in effect since June 15, 1939. Cuban exporters of sugar and sirup are required to deliver to the Government 30 percent of the dollars obtained from such exports in return for Cuban silver pesos at par.

Effect of the War

The volume of foreign trade has been fairly well maintained since the outbreak of hostilities in Europe in 1939, primarily because of the relatively small value of Cuba's trade with European countries. The United States share in Cuba's trade—and that of other American countries—has increased as a result of Cuba's effort to find alternative markets for those lost in Europe and as a result of not being able to obtain needed import supplies from Europe or the Far East.

During the first year of the war it was possible to continue much of the trade with European countries; exports to Europe in 1940 amounted to nearly 18 million dollars as compared with about 30 million dollars during previous years. Shipments to the United Kingdom were reduced to about one-half and those to continental European countries were reduced only about one-fourth, with fairly large shipments to Spain, France, and the Scandinavian countries. Imports from Europe also dropped to about one-half, while those from the United States were maintained at near the previous level.

During the second year of the war Cuba's exports to continental Europe declined from a level of about 11 million dollars before the war to only 2.5 million in 1941 and was limited almost entirely to Spain and the other unoccupied countries. On the other hand, exports to the United States and other American countries, notably Mexico and Canada, increased sharply from a pre-war level of 126 million to 190 million in 1941, thus more than offsetting the losses in Europe. Part of the increase in value of trade, however, was due to rising prices rather than actual quantity of goods. In general, during the first year, the war affected exports of sugar and cigars more adversely than other products because these constituted a large part of the former trade with Europe. During 1941, however, the entry of the United States into the war and the scarcity of ships greatly increased Cuba's outlet for sugar and molasses in the United States and caused Cuba to look there for the major portion of its rice imports. By the spring of 1942 the restriction of shipping was curtailing the movement of sugar, fruit, vegetables, and meat even to the United States.

DEGREE OF AGRICULTURAL SELF-SUFFICIENCY

Much progress has already been made in the past 15 years in the diversification of Cuba's agriculture and in increasing the degree of its self-sufficiency. Products other than sugar and tobacco have increased from only 4 percent of the total exports in 1924–26, to about 16 percent in 1940. Similarly, agricultural products declined in importance from constituting about one-third of total imports in 1924–26 to only about one-fourth of the total in 1940.

The most significant development has been in the livestock industry. Production of beef increased sufficiently to permit imports formerly amounting to 40 to 50 million pounds (costing 5 to 6 million dollars annually) to be reduced almost to zero, while exports of chilled beef in 1940 rose to about 12 million pounds and in 1941 to 42.5 million. The hog industry has also increased but not as rapidly. Pork imports, which amounted to 40 to 65 million pounds (costing 7 to 9 million dollars annually), have declined to only 4 million pounds in 1940. With respect to lard the change has been smaller; imports declined only about one-third during this period.

Development of the dairy industry also stands out significantly. Evaporated milk (including condensed) is the most important item, with former imports amounting to nearly 50 million pounds, costing about 5 million dollars. By 1940 condensed milk, butter, and cheese were all on an export basis. Egg imports also declined from about 17 million pounds, costing 3 million dollars, to practically none. It is estimated that the total value of net imports of these edible livestock products, formerly at a level of 35 to 40 million dollars annually, has declined to a net-import value of only about 3 million dollars in 1940. The following shows the quantity of the principal livestock products imported annually for 1924–26 as compared with 1940:

	Average 1924–26 *Million pounds*	1941 *Million pounds*
Beef	40–50 imported	43 exported.
Condensed milk	48–49 imported	16 exported.
Butter	2–3 imported	1 exported.
Cheese	5–6 imported	1 exported.
Eggs	16–20 imported	None.
Pork	40–65 imported	3 imported.
Lard	90–105 imported	80 imported.

Imports of the following crops have all declined sharply: Potatoes, corn, beans, oats, and coffee. Two of these—coffee and corn—are now on a net-export basis. The total import value of these items has been reduced from about 16 million dollars to net imports of only about 2 million dollars in 1940. Diversification has also taken place in the form of increased production of fruit and vegetables for export. However, two of the most important cereal products, rice and wheat flour, are still largely imported. Climatic conditions are not suited to the production of wheat, and there is usually insufficient rainfall for good yields of rice without irrigation.

Table 67 shows the estimated degree of self-sufficiency obtained by 1937–39 for the most important items of Cuban agriculture. The data on production and consumption in most cases are purely estimates rather than accurate statistics. Production in some cases, notably beef, condensed milk, and butter, has continued to increase since 1937–39 to a point where these products were on a net-export basis by 1940. Peanut-oil production also increased to a point of supplying possibly one-third of the total vegetable-oil requirements by 1940–41.

TABLE 67.—*Cuban self-sufficiency in principal agricultural products (estimated), average 1937–39*

Product	Production [1]	Imports [2]	Exports [2]	Consumption [3]	Degree of self-sufficiency
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Percent*
Sugar	6,570	(4)	5.979	[3] 400	1,643
Tobacco	52	(4)	[5] 32	20	260
Coffee	60	(4)	16	44	136
Cacao	1	(4)	(4)	1	101
Cotton	(4)	5	(4)	5	5
Meat:					
Beef [6]	250	(4)	(4)	250	100
Pork	38	5	(4)	43	88
Poultry	40	(4)	(4)	40	100
Dairy and eggs:					
Condensed milk [6] [7]	31	4	(4)	35	89
Cheese	4	.5	(4)	4	90
Eggs	42	(4)	(4)	42	100
Fats and oils:					
Butter [6]	6.5	(4)	.5	6	108
Lard	30	47	0	77	39
Other animal oils	3	7	(4)	10	30
Vegetable oils [6]	5	49	(4)	54	9
Grain and beans:					
Rice	35	450	(4)	485	7
Wheat and flour	(4)	209	0	209	0
Corn	274	.5	14	260	105
Other grain [8]	(9)	3	(4)	4	20
Beans and peas	100	55	(4)	155	64
Vegetables, etc.:					
Potatoes	120	72	2	[3] 190	70
Sweetpotatoes and yams	405	0	(4)	405	100
Yuca	360	0	(4)	360	100
Malangas	300	0	(4)	300	100
Plantains	575	0	1	574	100
Bananas	910	0	260	650	140
Onions and garlic	3	31	0	34	9
Tomatoes	142	(4)	52	90	158
Pineapples	220	0	104	116	190

[1] Production data are estimated except for sugar, tobacco, coffee, and cacao, which are official.

[2] Import and export data are from official statistics.

[3] Consumption data are estimated on the basis of amounts available for consumption and estimates by Hugo Vivó (*19*). In the case of sugar, the quantity available for consumption is greater than the estimated consumption because of larger stocks at the end of the period. In the case of potatoes the quantity shown includes the relatively large requirements for seed.

[4] Less than ½ million pounds.

[5] Tobacco exports are unstemmed leaf equivalent and include leaf used in the manufacture of products for export.

[6] The exports, and hence the degree of self-sufficiency, of beef, milk, butter, and vegetable oils have all increased materially since 1937–39.

[7] Including evaporated, powdered, etc.

[8] Excluding imports of malt, amounting to about 16 million pounds annually.

[9] Largely small quantities of millet.

As a whole, Cuba is now on a surplus basis in meat production—exports of beef (1940–41) more than offset the quantity of pork products imported. Dairy-product and egg production also attained self-sufficiency by 1940, when exports of condensed milk, cheese, and butter exceeded imports. Vegetable and fruit production as a whole has long been on an export basis—bananas, pineapples, grapefruit, and winter vegetables have heavy export surpluses. Corn and coffee have also been exported during recent years.

The most important deficit agricultural items are rice, wheat flour, lard, and vegetable oils, which, together, accounted for three-fourths of all Cuba's agricultural imports. Domestic production of rice and flour is less than 10 percent of the requirements. The fat and oil deficiency is also large. Production of butter, lard, and peanut oil has increased, but the total combined deficiency of all fats and oils still amounted to an estimated 100 million pounds in 1940 (largely lard and vegetable oils), while domestic production supplied only about 36 percent of requirements. Other items of deficiency are beans and potatoes, of which domestic production supplied about 60 and 66 percent, respectively, of the requirements, and onions and garlic, most of which are imported.

AGRICULTURAL POLICY AND GOVERNMENT MEASURES

Cuba in fact had no clear-cut agricultural policy until recent years. Economic and political considerations determined trade and, in turn, production. During the preceding century Cuba's colonial agriculture, as in most undeveloped countries, was directed first to the production of cattle on an extensive ranch scale. Subsequently, coffee rose to great importance, particularly in the central and western part of the island where very little is now grown. This, in turn, was replaced by sugar, which grew to such importance until after the World War that it has dominated the entire economy of the country even to this day. Only after the sharp rise of nationalistic policies in other countries and the sharp decline in the world market for sugar was Cuba forced to seek diversification.

The first real step toward diversification was the upward revision of tariffs in 1927 to discourage imports and to protect domestic production. It may now be said that diversification constitutes the central point in Cuban agricultural policy, and the reasons advanced for it are:

(1) To develop production to increase the national income and replace that lost from the decline in exports of sugar;
(2) To provide employment during the long dead season between sugar harvests and for people formerly employed in the sugar industry but now unemployed;
(3) To conserve foreign exchange by making it unnecessary to import as large a proportion of the country's consumption requirements;
(4) To reduce the hazards incident to reliance on one-crop agriculture;
(5) To improve the standard of living by increased production of products for home use and for the domestic market; and
(6) To increase the production of raw materials for the domestic manufacturing industry.

Another more recent and less well-established point in Cuba's agricultural policy is the desire to rehabilitate laborers, unemployed and partially employed, on small tracts of land where they should be able to grow a major portion of their food requirements. Along with the policy of agricultural diversification and rehabilitation there should be mentioned at least two other matters of general national policy that have a bearing on agriculture. These are the announced policy to improve wages and to develop manufacturing enterprises in Cuba. Minimum-wage legislation has been in force for a number of years and covers all kinds of work. This has served to increase consumer income but has also acted to increase the cost of production in some cases.

Government measures taken to implement the policy of agricultural diversification in addition to the higher tariffs since 1927 for the most part are administered through the Ministry of Agriculture or through semigovernmental agencies especially created for that purpose. Most important of the regulatory measures, in addition to the usual type of inspection service on meat, milk, and export vegetables, are the control of prices and in some cases control of production and trade. Price control is a relatively recent measure. Examples are the fixing of minimum prices to producers in order to encourage production, as in the case of coffee and cattle. On the other hand, maximum retail prices have been established for beef, rice, and milk in order to protect consumers. In September 1939 a decree established maximum prices for 28 basic foodstuffs; the following week rice was included. Later these were modified to include both wholesale and retail prices of articles of prime necessity. Subsequently, some of the prices proved to be too rigid and inflexible and therefore provision was made to vary prices. In August 1941 a new decree specified the method by which "fair" prices for both the wholesale and the retail trade were to be determined on a cost-plus basis. Wholesalers were to supply current cost-price information periodically and the Ministry of Commerce was to publish a weekly bulletin of fair prices.

The most important instance of control of production is in the case of sugar, where a semigovernmental agency—the Sugar Stabilization Institute—determines production quotas for each mill and in turn for individual producers. The control extends to the exports of sugar. Another instance of export control is that of coffee, 30 percent of the production of which may be required to be exported.

In order to stimulate diversification and increase the production of food crops during the war a decree law on February 4, 1942, required all farmers with more than 167 acres of land, and sugar mills growing their own cane, to devote a specified portion of their land to the production of obligatory food crops (except sugar), such as rice, corn, peanuts, and beans. Cattlemen may produce hogs instead of food crops—30 hogs being considered equivalent to 10 acres of food crops.

Direct aid in the form of grants and loans has been extended by the Government in a few instances, notably the distribution of free rice seed to small farmers and the granting of loans for the construction of rice mills and a cooperative packing plant in Habana. Other Government measures under consideration involve the construction of numerous irrigation projects and storage warehouses and the purchase of agricultural equipment. Direct Government aid also has been provided for rehabilitating unemployed through the distribution of Government-owned lands. The Government also maintains forest-tree nurseries for the production of seedling trees to stimulate reforestation. Cuba has no Government agricultural-credit organization, although there is a great need for credit, particularly to finance harvesting and marketing. Plans for farm credit have been studied repeatedly.

Research, education, and extension are all carried on by experiment stations and the Ministry of Agriculture, although the work is handicapped primarily by lack of adequate funds and in some cases by insecurity of tenure. Large sugar companies also carry on agricultural research, not only in an effort to improve sugar production, but also to find alternative products to supplement the sugar crop.

Agricultural education is given in six secondary agricultural schools, one in each Province, and the College of Agriculture in the University of Habana. Extension work is carried on both directly from the Ministry through agricultural publications, reports, radio releases, demonstrations, and fairs and through the 126 municipal agricultural inspectors, one of whom is located in each municipality. These inspectors are generally comparable to the county agents in the United States, but in Cuba their work consists primarily of reporting on crop conditions and prices. They have limited training, receive relatively low salaries, and are handicapped by lack of operating funds, equipment, assistance, and transportation.

FUTURE AGRICULTURAL DEVELOPMENT

The foregoing estimates of the degree of agricultural self-sufficiency are based on present consumption, but this obviously varies widely according to the degree of prosperity. In the past, the volume of imports, even of the basic food items, has varied with the volume of Cuba's exports. Furthermore, the purchasing power of a large part of the Cuban population is so low that any improvement is reflected in increased food consumption. Consumption of many agricultural products could be materially increased in the interests of better nutrition and health. This is true not only of the staple items, rice, corn, beans, lard, and meat, but especially of such items as dairy products, eggs, and fresh vegetables. Cuba's consumption of milk, butter, cheese, and leafy vegetables is very low when compared with that in many other countries. Increased agricultural production, therefore, need not necessarily be reflected in increased exports or decreased imports.

The production of dairy products and vegetables for domestic consumption could easily be expanded if there were an increased demand on the domestic market. To develop increased consumption would require increased consumer purchasing power, improved marketing facilities, such as transportation and refrigeration, in addition to consumer education as to the desirability of greater use of these products. Only a part of the total number of cows in Cuba are now being used for dairy production. Beef production could also be expanded through improvement in breeds and the control of ticks and possibly through supplemental feeding. The latter is purely an economic consideration, since the usual low price of beef does not justify the feeding of expensive grain.

Production of the principal food crops—rice, corn, beans, onions, and garlic could also be increased. In the case of rice increased production will depend primarily on the construction of irrigation works (see fig. 43), and it is doubtful whether Cuba will ever be able to produce more than a part of its total rice requirements. As for other products, however, production could easily be increased with the incentive of improved marketing and storage facilities.

Production of vegetable oil from peanuts will probably expand and supply an increasing proportion of the domestic requirements, but Cuba will probably never be able to replace all import requirements because the country is not adapted for production of certain kinds of fats and oils. It may be possible to supplement peanut-oil production with plantings of the African oil palm if experiments now being made in Cuba continue to prove satisfactory. For nonedible oils the production of castor beans could probably be increased to supply fully the domestic requirements of that oil and possibly some exports as well. Experimental plantings of tung trees indicate that it may be possible to produce tung oil on an export basis.

The development of additional crops for export in most cases requires further experimentation to determine the most suitable varieties, methods of production, and market requirements and prices.[58] Bananas have long been grown in Cuba and have played an important part in exports, but further expansion would probably require that this industry be reorganized from the present extensive methods of production used in the mountainous region in Oriente to more intensive methods.

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[58] According to the findings of the agricultural commission that in 1941 studied the possibilities of developing new export products in Cuba.

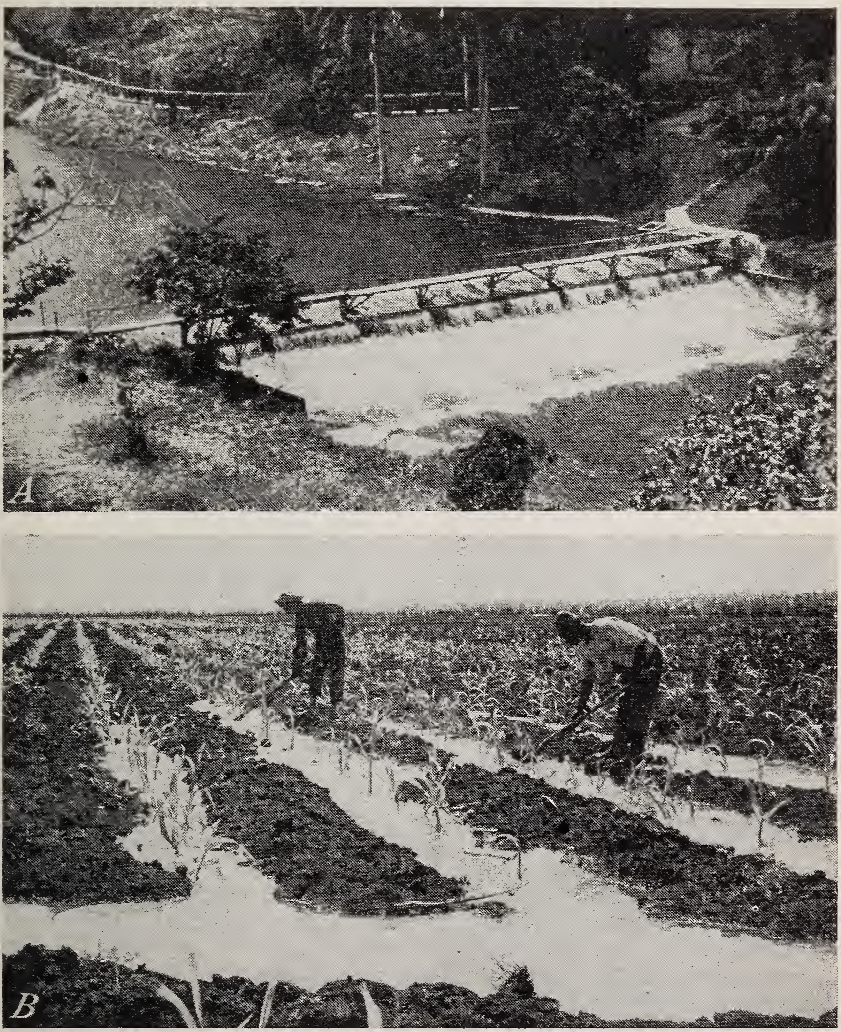

FIGURE 43.—Irrigation is needed in Cuba, particularly for rice and for other crops during the dry winter season. *A*, Diversion dam across a small river; *B*, irrigating a row crop.

These would involve plantings in other regions with more nearly level areas of fertile soils suitable for irrigation and spraying in order to control the sigatoka disease, which appears to threaten future banana production.

Cacao also has long been grown on an extensive basis in eastern Cuba, but production has been greatly reduced because of increased competition from other countries and from other crops in Cuba. It is possible that new plantings of the best-quality criollo-type cacao may permit production again to reach a profitable export basis. Cacao in Cuba has not been subject to the witches'-broom disease, a serious factor in some other countries.

Production of cassava, or tapioca, starch for export also appears to offer possibilities if the present manufacturing processes are improved to provide more economical operation and to produce a higher-quality starch than that now customarily used in Cuba. The United States now imports large quantities of cassava starch from the Far East. Varieties of yuca used in the production of cassava starch should also be improved to increase yields and reduce the cost of the raw material.

Kapok, and certain other fibers, in addition to tung oil and castor-beans, appears to offer future possibilities for production for export if further experimentation continues to give favorable results.

Some other products of which the United States is a heavy importer do not appear to be well adapted for production in Cuba. Among these are rubber, cinchona or quinine, abacá or manila hemp, and silk. Rubber production in Cuba does not appear to be economically feasible because Cuba does not have a sufficiently warm and moist climate for the commercial development of large plantations of Pará or Hevea rubber. Quinine production on a commercial scale requires that planting be made at a high elevation, and the preparation of the bark for market requires a large amount of cheap hand labor. In this respect Cuba, with its higher wage standards, would be at a disadvantage when compared with the countries where lower wages prevail. Similarly, the economical production of abacá, or manila hemp, requires a deep, rich, soil and a warm climate with frequent and heavy rainfall in order to produce high yields. Furthermore, the decortication also requires a great deal of cheap hand labor. The use of machinery for this purpose has not proven entirely satisfactory. Silk could be produced in Cuba, but not at a price comparable with that of silk from the Far East, where labor costs are very low.

The further development of Cuba's agriculture depends in large measure on diversifying production both for export and for domestic use. Not only can urban consumption be increased, thus providing a market for greater agricultural production, but Cuba's farmers should produce more of the food they themselves consume on the farm, such as milk, eggs, fruit, and vegetables. In order to accomplish this the agricultural education and extension services in Cuba should be greatly strengthened to reach farmers effectively in all parts of the island. This, in turn, would require not only increased Government expenditure for such work to provide trained personnel, adequate assistance, equipment, and means of transportation, but also the placing of the personnel of these services on a permanent merit basis with greater security of tenure.

Improved farm prices and marketing facilities should play an important part in the future development of agriculture. In most cases the anticipated financial return is the principal incentive for production, and when farmers do not have reasonable assurance of being able to sell their products they are not willing to venture the expense of production. In the case of most farm products in Cuba, except sugar and a few others, there is a very wide spread between prices received by the growers and prices at the central markets. Improved methods and facilities for marketing, such as improved roads, storage facilities, price information, and extension of credit to facilitate harvesting and marketing, would do much to improve actual returns to growers. The need for agricultural credit was pointed out by the Foreign Policy Association in 1934 (*12*), which stated that credit facilities in Cuba were prohibitive and the cost ruinously high because the grower was usually forced to sell at unfavorable prices to local agencies that have advanced credit to him. The absence of year-round roads in many agricultural areas is in itself a severe handicap to the marketing of farm products.

As a whole, the possibilities of future development of Cuban agriculture appear bright. The natural factors are favorable. The country has large areas of good soil and a good climate, with a continuous growing period although the rainfall is relatively low during the winter months. Cuba is not overpopulated—its agricultural production could maintain a relatively high standard of domestic consumption in addition to a thriving export trade. It is centrally located, near markets in the United States and near the trade routes of inter-American commerce. Furthermore, most of its products are of a semitropical nature either not produced in the United States or produced in insufficient quantities.

LITERATURE CITED

(1) ACUÑA, JULIAN, and ZAYAS, FERNANDO DE.
1940. FRUTA BOMBA O PAPAYA: CONSIDERACIONES ECONÓMICAS Y OBSERVACIONES SOBRE SUS ENFERMEDADES. Rev. de Agr. [Cuba] 23 (10–15): 49–80, illus.

(2) ADAMS, JOHN QUINCY.
1917. WRITINGS OF JOHN QUINCY ADAMS. Edited by Worthington Chauncey Ford. V. 7.

(3) AGETE Y PIÑE[I]RO, FERNANDO.
1936. EL CAFÉ. 118 pp., illus. Habana.

(4) ———
1938. LA FRUTA BOMBA. Santiago de las Vegas Estac. Expt. Agron. Cir. 76 (ed. 2), 26 pp., illus.

(5) AMERICAN POULTRY ASSOCIATION.
1940. THE AMERICAN STANDARD OF PERFECTION. A COMPLETE DESCRIPTION OF ALL RECOGNIZED VARIETIES OF FOWLS, AS REVISED . . . 492 pp., illus. Davenport, Iowa.

(6) BENNETT, HUGH H., and ALLISON, ROBERT V.
1928. THE SOILS OF CUBA. 410 pp., illus. Washington, D. C.

(7) BERNHARDT, JOSHUA.
1920. GOVERNMENT CONTROL OF THE SUGAR INDUSTRY IN THE UNITED STATES. AN ACCOUNT OF THE WORK OF THE UNITED STATES FOOD ADMINISTRATION AND THE UNITED STATES SUGAR EQUALIZATION BOARD, INC. 272 pp. New York.

(8) CUBA ECONÓMICA Y FINANCIERA.
1940. ANUARIO AZUCARERO DE CUBA 1940. CENSO DE LA INDUSTRIA AZUCARERA DE CUBA Y MANUAL ESTADÍSTICO INTERNACIONAL. 124 pp., illus. Habana.

(9) CUBA SECRETARÍA DE HACIENDA, ESTADÍSTICA GENERAL.
1907, 1932, 1939. INDUSTRIA AZUCARERA Y SUS DERIVADOS. Zafra de 1904–1905, 60 pp., illus.; Zafra de 1932, 75 pp., illus.; Zafra de 1939, 127 pp., illus.

(10) DAVIES, HOWELL, ed.
1941. CUBA. *In* The South American Handbook, ed. 18, pp. 347–361. London.

(11) DICKENS, PAUL D.
1938. AMERICAN DIRECT INVESTMENTS IN FOREIGN COUNTRIES, 1936. U. S. Dept. Com. Econ. Ser., Finance Div., No. 1, 49 pp., illus.

(12) FOREIGN POLICY ASSOCIATION, COMMISSION ON CUBAN AFFAIRS.
1935. PROBLEMS OF NEW CUBA. 523 pp., illus. New York.

(13) Guerra y Sánchez, Ramiro.
1940. la industria azucarera de cuba, su importancia nacional, su organización, sus mercados, su situación actual. 304 pp. Habana.
(14) Kenkel, Anthony B., Wallace, Benjamin B., et al.
1929. effects of the cuban reciprocity treaty of 1902. U. S. Tariff Com. 436 pp., illus.
(15) Nieves, I. Resillez.
1939. tierra y hombre como elementos productores. Rev. de Agr. [Cuba] 5: [2031]–2032.
(16) United States Tariff Commission.
1940. cuba. Foreign Trade of Latin Amer., pt. 2, sect. 18, 84 pp., illus.
(17) ———
1932. fresh vegetables. report to the president on differences in the costs of production of certain fresh vegetables in the united states and in the principal competing countries . . . U. S. Tariff Com. Rpt., Ser. 2, No. 39, 175 pp., illus.
(18) ———
1934. sugar. report to the president of the united states . . . U. S. Tariff Com. Rpt., Ser. 2, No. 73, 256 pp., illus.
(19) Vivó, Hugo.
1938. los números índices en cuba. Cuba Sec. de Agr., 43 pp.

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